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6 December 1984

China Report

ECONOMIC AFFAIRS

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CHINA REPORT

ECONOMIC AFFAIRS

CONTENTS

PEOPLE'S REPUBLIC OF CHINA

NATIONAL POLICY AND ISSUES

GUANGMING RIBAO on Application of Law of Value
(Gui Shiyong; GUANGMING RIBAO, 28 Oct 84)..... 1

XINHUA on Strengthening Major Enterprises
(XINHUA, 10 Nov 84)..... 6

PROVINCIAL AFFAIRS

Trans-Provincial Economic Information Network Founded
(Shanxi Provincial Service, 15 Nov 84)..... 8

Briefs
Hubei Economic, Technological Cooperation 9
Hubei Food Industry 9

ECONOMIC DEVELOPMENT ZONES

Briefs
Tianjin-French Region Cooperation 10

ECONOMIC PLANNING

Tianjin Construction Plans of Development Zones
(TIANJIN RIBAO, 1 Nov 84)..... 11

ECONOMIC MANAGEMENT

Yuan Baohua Speaks on Responsibility System
(Beijing Domestic Service, 10 Nov 84)..... 13

State Council Transmits Insurance Report
(XINHUA, 9 Nov 84)..... 14

Insurance of Beijing Property, Assets Increase
(XINHUA, 10 Nov 84)..... 17

Chongqing's Economic Reforms Produce Results
(XINHUA, 13 Nov 84)..... 19

Shanghai-Hong Kong Economic Association Formally Established
(ZHONGGUO XINWEN SHE, 16 Nov 84)..... 21

Professor Talks to Press on Economic Reform
(XINHUA, 16 Nov 84)..... 22

Briefs
Worker-Turned-Entrepreneur Commended 23
Central China Economic Information Center 23
State Contract Workers Employment 24

ENERGY

Energy Development Policy Within Modernization Plans
(Rolf Kappel; ZEITSCHRIFT FUER ENERGIE WIRTSCHAFT, Sep 84)..... 25

INDUSTRY

Strategies for Coordination of Local Metallurgical Industry
(Zhang Shouqi; KEJI ZHANLUE KEJI GUANLI [STRATEGY AND MANAGEMENT OF SCIENCE AND TECHNOLOGY], May 1983)..... 47

Strategic Readjustment of Shanghai's Industry Discussed
(Luo Hoxiang, Zhu Xiangxian; CAIJING YANJIU [STUDY OF FINANCE AND ECONOMICS], NO 3, 25 Jun 84)..... 50

Prospects, Challenges for Machine-Building Industry Analyzed
(Yi Hui; RENMIN RIBAO, 22 Jul 84)..... 60

Hubei's Metallurgical, Textile, Machine-Building Industries
(HUBEI RIBAO, 22 Aug 84)..... 64

Auto Production for 1984 May Top 300,000
(ZHONGGUO XINWEN SHE, 11 Nov 84)..... 66

Statistics on New Electro-Mechanical Equipment Compiled
(TONGJI [STATISTICS], No 4, 1984)..... 68

Position, Role of Electronic Technology Discussed
(Guo Rongzhen; KEXUEXUE YU KEXUE JISHU GUANLI [STRATEGY AND MANAGEMENT OF SCIENCE AND TECHNOLOGY], No 5, 1984).... 72

Briefs
Margarine, Oil Production Line 75

FOREIGN TRADE AND INVESTMENT

Warsaw Weekly Eyes Improving PRC-Polish Trade Relations
(Andrzej Halimarski; POLITYKA, No 42, 20 Oct 84)..... 76

LABOR AND WAGES

Job Wage System Discussed
(Qian Shiming, Tong Yuanshi; CAIJING YANJIU [STUDY OF FINANCE AND ECONOMICS], No 3, 25 Jun 84)..... 82

Anhui Promulgates Trial Rules on Labor Contracts
(Anhui Provincial Service, 19 Nov 84)..... 92

TRANSPORTATION

Railway Ministry Urges Stricter Traffic Control
(CHINA DAILY, 10 Nov 84)..... 93

CHINA DAILY on Chaos on Beijing Subway
(Chen Pingjun; CHINA DAILY, 11 Nov 84)..... 95

Rail Junction Improvements May Help Flow of Coal
(Xu Yuanchao; CHINA DAILY, 14 Nov 84)..... 98

Briefs
Shanghai-Ningbo Air Service 100
Shanxi Railway Electrification 100

ABSTRACTS

COMMUNICATIONS

(Chen Ronghuai; DIANLI XITONG ZIDONGHUA [AUTOMATION OF ELECTRIC POWER SYSTEMS] Vol 7, No 6, Nov 83)..... 101

(Bu Fanqiang; DIANLI XITONG ZIDONGHUA [AUTOMATION OF ELECTRIC POWER SYSTEMS], Vol 7, No 6, Nov 83)..... 102

(Wang Dianli, Huang Jianjun; DIANLI XITONG ZIDONGHUA [AUTOMATION OF ELECTRIC POWER SYSTEMS], Vol7, No 6, Nov 83)..... 103

GUANGMING RIBAO ON APPLICATION OF LAW OF VALUE

HK090845 Beijing GUANGMING RIBAO in Chinese 28 Oct 84 p 3

[Article by Gui Shiyong [2710 0013 6978]: "On the Extreme Importance of Consciously Applying the Law of Value"]

[Text] The "Decision of the CPC Central Committee on Reform of the Economic Structure" adopted by the 3d Plenary Session of the 12th CPC Central Committee is a programmatic document which guides the reform of the economic structure of our country. The "Decision" integrates the fundamental tenets of Marxism with the actual conditions of our country, systematically sets forth and expounds a series of important questions in restructuring the national economy, further maps out a distinct blueprint for conducting the reform of the economic structure, enriches and develops Marxist political economics and scientific socialism, and is of great realistic significance and profound historical significance.

An important theoretical breakthrough of the "Decision" is that it clearly points out that the socialist planned economy of China is a planned commodity economy based on public ownership, and it stresses, from a new height, the utter importance of consciously following and applying the law of value in the socialist planned economy. This will display a great guiding function in promoting the reform of our economic structure and in building socialism with Chinese characteristics.

The status and role of commodity production and the law of value under the socialist system are a very important question which has not been correctly solved for a long time. The traditional concept is to regard commodity production as pertaining to an economy of private ownership with social division of labor, and it holds that when the system of private ownership is replaced by the socialist public ownership, the relations between commodity and currency will wither away, and the law of value will lose its conditions of existence and will no longer function. Later, enlightened repeatedly by practice, people acknowledge that in the socialist economy, there still exist commodity production and exchange of commodities, and the law of value still plays its own role, but they hold that this is determined by the existence of two types of systems of public ownership in a certain period of socialism. This view only acknowledges that the exchanges between public onwership and collective ownership and between collective economic units

themselves are commodity exchanges with transfer of ownership, but it does not acknowledge the existence of the essential relationship between commodity and currency within the system of public ownership, and does not acknowledge that the law of value still functions in various economic fields, thus pitting the planned economy against the commodity economy and the law of value. It holds that with the development of the socialist economy and the strengthening of the planned economy, the commodity economy and the law of value will be increasingly subject to limitation; on the other hand, the development of commodity economy and the application of the law of value are certain to do harm to the planned economy. In the final analysis, the commodity economy and the law of value are regarded as anomalies of socialism. For a long time in the past, this view occupied a predominant position, and exerted a serious passive influence on the socialist economic construction and the socialist economic system, which was mainly manifested in:

First, with regard to the guiding ideology in the economic construction, the growth of output value and output was sought after one-sidedly, and the enhancement of the economic results was neglected. Seeking after economic results and achieving greater positive results with the least consumption of labor, or, greater output with smaller input, is the basis for the development of any kind of economy. Under the socialist conditions, the consumption of labor is still manifested and assessed by value. Hence, without due regard to value and its law of movement, it is impossible to carry out serious comparison between the consumption of labor and the positive results, or to practice strict economic accounting, and therefore it is impossible to attach importance to economic results. It was precisely under the influence of the view of "not taking the economic aspect into account" that such things happened: In production, little attention was paid to the quality of products, the production cost, or the increase of profits; in construction, little attention was paid to the comparison between input and output and the shortening of the cycle of construction, or there was not the concept of the recycling of capital and interest; in circulation, little attention was paid to the speed of the recycle of floating capital, or to more channels with less links, or to lowering the cost in circulation, and so on and so forth. All this seriously hampered the healthy development of the national economy. For a long time, the speed of our production growth has not been low, but the social wealth has not been increased correspondingly; as a result, the proportion between accumulation and consumption has often been in a strained situation, and has even been out of balance many times, and the people have not been able to get their due benefits. This situation in the development of the economy had much to do with the negligence of the commodity economy and the law of value.

Second, with regard to the pattern of the economic system, centralized management with administrative measures was emphasized one-sidedly, leading to a state of ossification and semi-ossification of the economy, which lacked the due vigor and vitality. On the one hand, because the relationship of commodity within the ownership by the whole people was negated and the status of enterprises as relatively independent economic entities with the power of independent operations and economic interests of their own was not recognized for a long time, the enterprises became in effect administrative appendages which had to follow instructions from the upper levels in everything

they did, and consequently the enthusiasm and crativity of the enterprises were seriously dampened. On the other hand, because the planned economy was regarded as equivalent to the all-embracing mandatory planning, and attempts were made to include all the social economic activities into plans by employing administrative orders in disregard of the use of economic levers and market regulation, the economy was consequently too rigidly centralized which was beneficial neither to the enhancement of the microscopic economic results nor to the realization of the macroscopic economic balance. It should be said that the formation of such an ossified pattern which fettered the productive forces was an important cause of the fact that the superiority of our socialist system was not brought into full play and the tremendous potential inherent in our economy was far from being tapped. Furthermore, the formation of such a pattern and the long-term inability to effect a change also had much to do with the negligence of the commodity economy and the law of value.

It can be seen from the above that changing the guiding ideology in our economic work or changing the old economic system all require that we shatter the fetters of the traditional concepts, gaining a new understanding of the question of commodity production in the stage of socialism, and attaching great importance to the application of the law of value.

Is the socialist economy still a commodity economy? If it is a commodity economy, is it logical that planned economy will become ineffective and the market economy will be bound to operate? The key to the correct answer of these questions lies in breaking away from the traditional concept which places the existence of the production of commodities on the premise of social division of labor and private ownership or on different systems of ownership, and lies in differentiating commodity production under private ownership from commodity production in general, and in differentiating commodity production under private ownership from commodity production under the socialist system. Commodity production is a form of production, and its premise is the existence of division of labor in society and operational bodies having different kinds of economic interests. So long as these two conditions exist, the law of exchange of equal values must be followed, and there must be commodity production and commodity exchange. At the same time, because different economic interests of different operational bodies under different social systems are generated by different social conditions and have different contents, commodity production is bound to adopt different forms so as to reflect different relations of economic interests. Under the socialist system, there exist not only different operational bodies in association with different systems of public ownership, but also different operational bodies within the system of ownership by the whole people because of the fact that the enterprises are relatively independent economic entities with the power of independent operations and economic interests of their own. The exchange between them, although not in the form of transfer of ownership, has much to do with their own economic interests and has to follow the principle of exchange at equal value, and is also a commodity exchange. Thus, commodity production in the socialist economy is not a local and transient phenomenon, but is a universal and long-term form of production, and it is determined by the intrinsic factors of the socialist

economy and goes with socialism from beginning to end. This means that the socialist economy is also a commodity economy, and the negation of it is out of keeping with the reality and is therefore incorrect. On the other hand, the socialist commodity economy is also a commodity economy of a special form, and the relations of production embodied by it are not only entirely different from the capitalist commodity economy, but are also essentially different from a simple commodity economy. The principal reasons are: first, it is based on the system of public ownership, and labor power is no longer a commodity, thereby eliminating the relationship of exploitation; second, what it embodies is the different interests of the enterprises under public ownership on the premise of common fundamental interests, and there is no fundamental conflict of interests among enterprises. Thus, the socialist commodity economy is not, and can in no way lead to a market economy characteristic of blind production and exchange; on the contrary, it can develop in a planned way within the entire society and it does not exclude the planned economy but can be unified with the planned economy.

Since the socialist economy is also a commodity economy, the law of value is bound to function in an extensive phere. Under these conditions, the implementation of planned economy has to follow the law of value and apply the law of value. Furthermore, since the law of value functions under the condition of public ownership, it can be consciously applied by people within the scope of the entire society, while under the condition of private ownership, it can only operate through the spontaneous activities and blind competition of the producers. In the socialist economy, naturally, aside from the law of value which functions, other laws also function, including the basic economic laws of socialism, the law of planned development, the law of distribution according to labor, and others. Since the law of value and these laws are on the same basis of public ownership, they are thus related to each other and influence each other, and generally their orientation of action is identical. The basic economic laws of socialism need the development of production so as to meet the material and cultural needs of the people. The law of planned development demands rational distribution of labor and conscious maintenance of a proper ratio in social production. The realization of all these requirements cannot be separated from the value which reflects and assesses the products of labor as well as the law of motion for value. The law of value demands that the consumption of labor in producing commodities should be in conformity with the average requisite amount of labor in society, and it demands that the total quantity of the production of every kind of commodity should be in conformity with the total quantity needed by society for that particular kind of commodity, thereby making the total amount of labor consumed in producing that kind of commodity a requisite of the society. Obviously, the function of the law of value will prompt the enterprises to raise their production efficiency and to produce their products in line with the needs of the market. This is in keeping with the requirements of the basic economic laws of socialism and the law of planned development. Only when the law of value is respected and applied can the requirements of the basic economic laws and the law of planned development be met. On the contrary, if the law of value is ignored and violated, the requirements of the basic economic laws and the law of planned development will hardly be able to be realized. Of course, it does

not follow that the application of the law of value can replace the application of other laws. When we determine the orientation and objectives of our economic development, we mainly make our decisions on the basis of the basic economic laws of socialism as well as the requirements of various kinds of laws as a whole. At the same time, the law of value functions mainly through the concern of the enterprises over their own interests. Under the socialist conditions, the overall interests of the state and the local interests of the enterprises are basically identical. Therefore, on most occasions, it can and should be possible to realize the requirements of other laws by means of the role of the law of value. However, the overall interests and the local interests may also be contradictory, and sometimes it is necessary to temporarily sacrifice certain local interests to ensure the overall interests. Under these conditions, the role of the law of value will be restrained by the basic economic laws and the law of planned development. Hence, we say that the planned economy must make use of the law of value, and the application of the law of value should serve the purpose of developing the economy in a planned way and satisfying the needs of the people. This is also one of the fundamental distinctions between the socialist economy and the capitalist economy on the question of the law of value, as pointed out by the "Decision."

In order to consciously follow and apply the law of value, it is necessary to reform the current planning system which neglects the law of value, to reduce the scope of mandatory planning step by step and to an appropriate extent, to appropriately extend the scope of guidance planning, to attach great importance to the utilization of the means of economic regulation such as pricing, taxation, and credit and loans, and bring into play the role of market regulation. This is a very great change inour planning work, and it is necessary that our ideology and style should be adapted to this change. At the same time, we should learn afresh in pratice and strive to master various kinds of knowledge and skills in applying the law of value.

CSO: 4006/88

NATIONAL POLICY AND ISSUES

XINHUA ON STRENGTHENING MAJOR ENTERPRISES

OW111213 Beijing XINHUA Domestic Service in Chinese 0041 GMT 10 Nov 84

[XINHUA commentator: "Strengthen the Vitality of Major Enterprises"--XINHUA headline]

[Text] Beijing, 10 Nov (XINHUA)--Strengthening the vitality of our major enterprises has a decisive significance for the development of the national economy as a whole. According to the State Statistical Bureau's 1983 statistics on the nation's 1,217 enterprises whose tax payments and profits exceeded 10 million yuan, although these enterprises accounted for only 0.3 percent of the nation's 350,000 industrial enterprises that practice an independent accounting system, their total output value accounted for 33.2 percent of the total output value of those 350,000 industrial enterprises while their tax payments and profits accounted for 50.7 percent of those of the 350,000 enterprises.

Yet, until now many major enterprises are still unable to play their important role as they lack the necessary conditions for improving and developing themselves. For this reason, some major enterprises have been unable to compete with some vital and vigorous small enterprises. This state of affairs does not very well match the position occupied by these major enterprises in the national economy. Only by expanding the decision-making powers of the major enterprises and allowing them to achieve superiority over small enterprises in technology and equipment can they make more contributions to raising the efficiency of the national economy as a whole and to accelerating China's modernization program.

Some people are concerned that expanding the decision-making powers of the major enterprises will create chaos in the national economy. We believe that this is possible if something goes wrong with the major enterprises, considering their decisive position in the national economy. Nevertheless, we should be aware that to make the economic activities of enterprises, including the major enterprises, suit the general requirements of the national economy's development, the state can, if necessary, control, inspect, guide, and regulate enterprises through planning and by economic, administrative, and legal means; can, by means of taxation, pool from the enterprises the net income that requires unified utilization by the state; and can appoint, dismiss, and approve the hiring of the enterprises' principal leading

members. Expanding the decision-making powers of the major enterprises and strengthening their vitality under these conditions can, on their part, not only ensure the diversity and flexibility of individual enterprises in production and management as well as their desire to make progress, but can also ensure the unity of the national economy as a whole, thus invigorating the major enterprises and stimulating the national economy's development without creating chaos.

Because major enterprises are an important source of state income, some people are also concerned that strengthening their vitality will affect the state's revenue. This problem truly deserves serious attention. However, the revenue of the state will not only be unaffected, but it will grow steadily so long as the relationship of the interests between the state, the enterprises, and the staff members and workers is correctly handled and the principle that the state gets the major share, the enterprises the middle share, and the staff members and workers the small share is upheld. Of course, a situation may arise in which some major enterprises, after they have been given greater decision-making powers, may use more funds for the technical transformation, and thus their tax payments delivered to the state may decrease for a time, but, in general, the investment of these funds can quickly raise their economic results. From a long-range point of view, this is necessary in order to open up more sources of income for the state. Take the Shoudu Iron and Steel Company as an example. In the 5 years from 1979 to 1983, this company used several hundred million yuan of its funds to carry out more than 40 key transformation projects, but the money it delivered to the state during that period increased substantially instead of decreasing. According to statistics, in the 5 years from 1974 to 1978 before it was given greater decision-making powers, this big company delivered a profit of over 730 million yuan to the company in the form of financial appropriations, so the state actually received only over 280 million yuan. However, in the 5 years between 1979 and 1983 after the company was granted greater decision-making powers, the state collected more than 1.29 billion yuan from the company, which is 3 times the amount collected in the 5 years before it was given greater decision-making powers.

The party Central Committee has issued a decision on reform of the economic structure. In addition, we can draw on the good experience of expanding the decision-making powers of the Shoudu Iron and Steel Company, the Jinan automobile manufacturing plant, and the Wuhan Iron and Steel Company. We believe that economic department comrades will do a good job in expanding the decision-making powers of the major enterprises so as to reinvigorate them.

CSO: 4006/88

PROVINCIAL AFFAIRS

TRANS-PROVINCIAL ECONOMIC INFORMATION NETWORK FOUNDED

HK170332 Taiyuan Shanxi Provincial Service in Mandarin 2300 GMT 15 Nov 84

[Text] [passage indistinct] The trans-provincial economic information broadcast network has been officially established. The main service of the network is to disseminate economic information through radio stations and information centers so as to serve relevant government departments, professional economic institutes, enterprises and institutions, individual traders and specialized households, and customers. The network will also provide service of [words indistinct] economic information according to the needs of customers.

Be He, deputy secretary of the Nei Monggol Regional CPC Committee and chairman of the regional government, met all delegates attending the trans-provincial radio journalists meeting. On behalf of the regional CPC committee and government and mandated by Comrade Zhou Hui, first secretary of the regional CPC committee, he congratulated the convocation of the meeting.

Bu He said: A new technological wave is now emerging in the world. Exploiting information resources meets the needs of the new technological revolution and corresponds with the reform of urban economic structure in our country. It will also facilitate building a modern socialist power with Chinese characteristics. In a situation of the rapid development in China's urban and rural commodity production, strengthening the dissemination of economic information will play a conducive role in developing the economy, in promoting the four modernizations, and in bringing about social progress. The vast number of radio journalists must give full play to the characteristics and superiority of radio broadcasting so as to exploit information. They must also strengthen cooperation and do their utmost to disseminate well economic and technological information so as to serve the building of the four modernizations.

CSO: 4006/88

BRIEFS

HUBEI ECONOMIC, TECHNOLOGICAL COOPERATION--To date, Hubei Province has established economic and technological cooperation connections with 21 provinces, municipalities, and autonomous regions throughout the country. The province has imported some 280 items of technology. It has also imported materials which are in short supply, including coal, timber, pig iron, and coke, whose value has reached some 200 million yuan. At the beginning of this year, in order to solve as soon as possible the problem of the shortage of coal used in industry, Wuhan City signed a contract with Shanxi Province for the development of coal resources in Shanxi Province. Songzi County hat factory imported advanced hat-making technology from Shanghai this year. As a result, the factory has increased its varieties by some 300, has reduced deficits, and has increased surpluses. [Summary] [Wuhan Hubei Provincial Service in Mandarin 1100 GMT 14 Nov 84 HK]

HUBEI FOOD INDUSTRY--The first Hubei provincial work conference on the food industry concluded yesterday. According to statistics compiled in 1983, the province had some 2,900 food enterprises and the gross food industrial output value reached 3,594 million yuan. The profits and taxes which were submitted to the state, by the food industrial enterprises accounted for 18 percent of the profits and taxes which were submitted to the state by all industrial enterprises throughout the province. The food industry second only to the metallurgical industry among the 15 industries in the whole province. In the food industry, the trades of brewery, cigarettes, beverage, and grain and oil processing have quickly developed. At the work conference, the establishment of the provincial food industry association was studied. Governor Huang Zhizhen attended the work conference and spoke. [Summary] [Wuhan Hubei Provincial Service in Mandarin 1100 GMT 14 Nov 84 HK]

CSO: 4006/88

BRIEFS

TIANJIN-FRENCH REGION COOPERATION--Tianjin, 13 Oct (XINHUA)--Minutes of talks, covering cooperation in economy, trade, science, technology, culture, education and medicine, was signed here today between China's Tianjin City and France's Nord-pas-de-Calais region. The items agreed upon by the two sides include construction of a coal mine and a coal gasification plant in Tianjin's Jixian County with French loans and technology, joint manufacture of ships and cooperation in food processing projects. More exchanges of students and delegation are expected between Tianjin and the French region. A French delegation led by Noel Josephe, president of the regional council of Nord-pas-de-Calais, visited Tianjin between October 9 and 13. During the visit, friendship ties between Tianjin and the French region was established. The French delegation left Tianjin for Beijing today. [Text] [Beijing XINHUA in English 1639 GMT 13 Oct 84 OW]

CSO: 4020/37

ECONOMIC PLANNING

TIANJIN CONSTRUCTION PLANS OF DEVELOPMENT ZONES

SK211111 Tianjin TIANJIN RIBAO in Chinese 1 Nov 84 p 1

[Excerpts] Tianjin Municipality has basically completed its strained preparatory work over the past 6 months for building economic and technological development zones thanks to study, appraisal, and on-the-spot investigations conducted by experts from various circles. The first phase project of the construction work will be in full swing as soon as it has been approved by the State Council.

It is learned that the Tianjin development zone is designed at the former third salt farm of Tanggu District, close to the new Tianjin Harbor and beside the railway between Beijing Municipality and Shanhaiguan City, the free way connecting Beijing Municipality, Tianjin Municipality, and Tanggu District in Tianjin, and [word indistinct] downtown of Tanggu District. The area is endowed with vast and flat land and has better conditions in facilities for water, electricity, and gas supplies and road transportation. It has broad prospects of development thanks to the low price of purchasing land and the dependence of urban facilities that will not only contribute to saving construction investment, but also provide favorable conditions of production and transport for upcoming enterprises. According to the development plan, the construction site of the first phase project is located in the southwest area of the development zone and at the crosspoint of the Jing-Shan railway and the freeway. Its acreage totals 3 square kilometers, of which industrial area will occupy 2.4 square kilometers. Meanwhile, the municipality will use 1.2 square kilometers of land to build an affiliated residence area and 2 square kilometers of land to build a residence area for foreign personnel. The first phase project of the construction work is designed to build from 100 to 150 industrial enterprises that are jointly run by both domestic and foreign firms.

The construction of the Tianjin Development Zone arouses extensive attention from both domestic and foreign firms. Among those that have come to the municipality to extend their cooperative will and to hold business talks are the China International Trust and Investment Corporation; the Merchants Steamship Company, the Huaren Group, the Guangda Industrial Company of Hong Kong; the Ministry of Urban and Rural Construction and Environmental

Protection; the Ministry of Electronics Industry; and the Ministry of Ordance Industry. Some of them have established a company or research unit in the the development zone. Foreign businessmen have also come or sent letters and messages to the municipality to make business contacts or conduct consultations. As of now, 94 items of business and production have been discussed, of which 20 items have basically reached conclusion, resulting in 1.07 billion yuan of total investment. Most of these items are of industrial production and also of scientific research and service trades. The investment in these items includes the forms of joint venture, monopoly capital of foreign businessmen, and the setting up of production coordination with inland enterprises. The greater proportion of these items is of industrial production that includes the electronic industry and industries engaging in production of new energy resources, machinery, new building materials, daily consumer goods, foodstuffs, and fine chemical products. The technology adopted for production of these items and the products turned out under these items will be more advanced. The introduction of these items is aimed at rendering service for conducting technical renovations and improving product quality among major enterprises throughout the municipality by importing advanced foreign techno-ogy.

CSO: 4006/89

ECONOMIC MANAGEMENT

YUAN BAOHUA SPEAKS ON RESPONSIBILITY SYSTEM

OW131305 Beijing Domestic Service in Mandarin 1200 GMT 10 Nov 84

[Text] Speaking at a Sichuan provincial meeting on trial-implementation of the plant director's responsibility system today, Yuan Baohua, vice minister in charge of the State Economic Commission, said: In our country, some 1,200 enterprises have introduced the system of responsibility of plant directors and managers. Although it has been only a short time since the institution of this system, it has certainly added new vitality to these enterprises and brought about many changes. First, the authority of plant directors has been established, and centralized leadership has been strengthened over production, operations, and management. As a result, the enterprises are able to make quick policy decisions, provide effective command in operations, and work with considerably higher efficiency. Second, the party committees of these enterprises have begun to shift the focus of their work to building party organizations, grasping ideological and political work, and implementing the party's principles and policies. The previous state of affairs where the party committees failed to take care of party work has changed considerably. Third, with the continuous progress in making reforms, especially with the elimination of the egalitarian practice of eating from the same big pot and the cadres' lifelong tenure system, all cadres can work at low as well as high positions, the best are selected and employed when recruiting workers, there are no complaints about the amount that one receives in the distribution of revenue, and the work enthusiasm of staff members and workers has been stirred up.

Yuan Baohua said: The implementation of the plant directors' responsibility system will affect work relations in various areas within enterprises. It will involve adjustment of certain economic interests and changes in ideology, concepts, leadership methods, and work habits. This is a rather complicated matter. Many questions still have to be resolved in the course of practice.

CSO: 4006/88

ECONOMIC MANAGEMENT

STATE COUNCIL TRANSMITS INSURANCE REPORT

OW1101244 Beijing XINHUA Domestic Service in Chinese 1501 GMT 9 Nov 84

[Text] Beijing, 9 Nov (XINHUA)--On 3 November the State Council approved and issued a "Report on Accelerating Development of China's Insurance Business" by the People's Insurance Company of China. The State Council also issued a circular calling for the implementation of the report by the various localities and departments.

The circular points out: Since the 3d Plenary Session of the 11th CPC Central Committee, China's insurance business has developed very quickly and has played an active role in the prevention and compensation of disasters, the stabilization of enterprise operation and people's livelihood, and the accumulation of construction funds. Practice has borne out that insurance is a good economic measure for managing the economy. Following a deepened reform of the economic structure and the constant development of the national economy, the insurance company will continue to expand its operations, and its responsibility will be increasingly heavy. The leaders at various levels must show concern for and support the development of insurance, and must help solve practical problems in work.

The report by the People's Insurance Company of China says: With State Council approval, the domestic insurance business, which has been suspended for two decades, was restored in China in 1980. Over the past 4 years, total premiums of 3.4 billion yuan have been collected at home and abroad. Over 300,000 cases have been settled with 1.3 billion yuan paid in compensations. The company has handed over 400 million yuan of taxes and profits to the state over the past 4 years. Through insurance coverage, some 300,000 enterprises and urban and rural households have promptly restored production and rebuilt their homes. Insurance has played an active role in stabilizing production and people's livelihood. Insurance has also covered economic losses in China's foreign trade, conserved foreign reserve funds, and absorbed them. However, China's insurance business has just started, and is falling far behind its rapid economic development both in terms of the scale of operation and the role played in the national economy. As of now, following the deepening of reform of China's economic structure, both the enterprises and the urban and rural residents have made new demands on insurance. Following the development of the rural specialized and key households and integrated economic associations, and to ensure the fulfillment of contracted

responsibilities, there emerged a general demand for insurance service. The popularization and application of new technology in the urban and rural areas calls for insurance service. The enterprises' institution of the repsonsibility system of combining responsibility, power, and profits also presents new demands for insurance. The urban collective enterprises ask for insurance to share their burden with regard to retirement pensions for workers and staff. Hence, it is inevitable that China must accelerate the development of the insurance business.

The People's Insurance Company of China presented the following opinions for accelerating development of China's insurance business.

1. Vigorously develop rural insurance business to meet the need for security as the peasants become better off, to support the peasants' scientific farming, adn to support rural commodity production. In addition, to further develop property insurance for urban enterprises, specialized and key households, integrated economic associations, and peasants' homes, we must gradually expand insurance to cover aquatics breedings and crops farming in the light of local conditions. The state insurance companies must actively support, guide, and supervise the rural insurance cooperatives run by peasants.

2. Implement compulsory pension insurance for workers and staff members of the urban collective enterprises in order to socialize the work toward the retired workers and staff members of the urban collective enterprises. Currently, we are investigating, studying, and drawing up measures for its implementation in next year.

3. Implement third-party compulsory insurance to cover all motor vehicles (including tractors) and ships to protect the interests of the victims in traffic accidents and to help solve disputes in compensations in the wake of accidents involving motor vehicles or ships. To facilitate enforcement and unified management, it is necessary to implement third-party compulsory insurance to cover all publicly or privately owned transportation vehicles (including vehicles owned by foreign nationals) and ships. It is also planned that insurance covering injuries to passengers from accidents, which have been assumed by communications, railway, and civil aviation departments since suspension of domestic insurance in 1959, is to be turned over to insurance companies.

4. Extensively develop the insurance business to cover commodity transportation by water, land, and air. Following international practice, it is planned to institute the compensation system of combining insurance with transportation responsibility.

5. To further run well property insurance for the state-run enterprises. Over a long period of time, property losses by enterprises because of natural disasters or accidents are usually covered by state finance after verification. However, this method is disadvantageous to the timely restoration of production. All state-run enterprises must bear responsibility for the safety of state property and must actively have their property insured. The practice of relying on reimbursement by state finance after verification

must be changed. This would not only eliminate the malpractice of "sharing food from the same bit pot," but would also improve and enhance the enterprises' operation and management and would stabilize financial revenue and expenditure.

6. Expand the insurance business abroad to meet the needs of opening to the outside world. In particular, the expansion of insurance work abroad must be further strengthened in the wake of accelerating construction of the special economic zones and the further opening of the 14 coastal cities to the outside world.

CSO: 4006/88

INSURANCE OF BEIJING PROPERTY, ASSETS INCREASE

OW1101230 Beijing XINHUA in English 1044 GMT 10 Nov 84

[Text] Beijing, 10 Nov (XINHUA)--Most of Beijing's 5,000 enterprises and 10 percent of its 1 million households have insured their assets or property. Insurance is becoming part of production and people's lives in the Chinese capital, Gao Zonghui, deputy general manager of Beijing branch of People's Insurance Company of China, said today. "We now have 26 kinds of policies, including 8 we added this year. The total amount of assets insured in the city has reached 17,000 million yuan."

"Insurance can help people, increase production and expand trade," the 53-year-old manager told XINHUA.

Panggezhuang Township, an important producer of water melons for the Beijing market, insured its crop this year, enabling it to increase its acreage from 270 to 470 hectares. Previously, farmers there did not dare extend their fields or let melons stay on the vine too long for fear of losses caused by hail and other poor weather conditions.

Pension insurance, which is being tested for the first time this year, has also proven popular with employees of collectively-owned enterprises and private businessmen who will receive no retirement benefits. Only workers in state enterprises, government institutions and some collectives are covered by China's national pension program.

Insurance company staff members inspect their clients' premises regularly, to make certain that proper safety measures have been adopted there. The stringent policy paid off earlier this year, when a factory director set fire to his building in northeastern Beijing in a bid to collect on the company's insurance. The fraud was uncovered by inspectors, and he was arrested instead.

China began offering domestic insurance coverage shortly after the founding of the People's Republic in 1949. The business was later criticized as bourgeois, and was suspended in 1958.

Since its reopening in 1980, the insurance company's Beijing branch set up 19 sub-branches and more than 400 offices in the city's 19 districts and counties.

Domestic insurance will be increasingly important in the years ahead because of China's on-going economic reform and the introduction of job responsibility system, Gao said.

CSO: 4020/35

ECONOMIC MANAGEMENT

CHONGQING'S ECONOMIC REFORMS PRODUCE RESULTS

OW139044 Beijing XINHUA in English 0844 GMT 13 Nov 84

[Text] Beijing, 13 Nov (XINHUA)--Chongqing, China's biggest city, reported livelier business transactions, rising industrial production and expanded foreign trade following economic reforms carried out in the past few years, according to an article in the current issue of the English language weekly BEIJING REVIEW.

Chongqing, an industrial and commercial center in southwest China, ranks fifth in the nation's industrial fixed assets. The city, with a metropolitan area embracing a population of 13.6 million, has carried out economic reforms to tackle these main problems in its economic system: over-centralized management, leaving little or no decisionmaking power to enterprises and egalitarianism in distribution.

The reforms have been carried out step by step, according to the article. Enterprises were given more decisionmaking power and allowed to retain some of the profits instead of handing them all over to the state in 1978. Beginning in 1980, some factories began replacing profit delivery with tax payment and assuming responsibility for gains and losses.

Then, the central authorities granted Chongqing the economic adminstrative powers of a province and the enterprises formerly under the administration of 22 ministries and Sichuan Province have been put under the management of the city.

A major field in the reform is commodity circulation, the article says. Under the old circulation system, state-owned wholesale shops were the sole agents and distributors for factory products. Now local retailers are permitted to buy goods directly from any wholesale center in China. This has quickened the pace of commodity circulation and helped factories respond to changes in market demand.

This year Chongqing guilt a big new industrial trading center where factories and shops can make direct contacts, and twelve smaller trading centers will be set up in surrounding townships.

More than 210 bazaars and nine wholesale markets for farm and sideline products have been established in towns for peasants from the 12 counties administered by Chongqing.

Shops and stalls run by collectives and individuals have broken the state monopoly in commerce, according to the article. By the end of 1983, there were 106,000 clothing shops, restaurants, hotels, bathhouses and repair shops in Chongqing, double the number of 1982. Two thirds were run by collectives or individuals.

Industrial reform started in Chongqing in 1978. State-owned enterprises began to pay taxes instead of delivering profits as of May 1983. Now all after-tax profits belong to the enterprises, so that better management means additional income.

Joint industrial companies have been organized by enterprises specializing in the same line of products in order to raise efficiency. For example, the Jialing machinery plant and eight other plants set up a joint company to manufacture motor scooters. Its production has multiplied to reach 150,000 motor scooters a year. Yet it has not expanded the original plant or employed more workers. Chongqing now has 120 such companies.

The city's total industrial output value rose 12 percent in 1983 over the preceding year and by another 12.2 percent in the first nine months of 1984. Gross profits rose 13.9 percent and revenues were up 9.4 percent in the first three quarters of this year over the same period a year ago.

Chongqing now has the right to conduct its own foreign trade negotiations, sign contracts and close accounts in foreign currencies.

The city has developed trade relations with 38 countries and regions over the past year. By utilzing foreign funds, 62 items of advanced equipment or technology were imported in 1983. Investment this year is expected to exceed 100 million U.S. dollars.

Yangtze River navigation has been improved as a result of breaking down administrative barriers. Beginning last year freighters from Chongqing downstream to Shanghai made the trip in an average of 39 days instead of the previous 54.

CSO: 4020/35

ECONOMIC MANAGEMENT

SHANGHAI-HONG KONG ECONOMIC ASSOCIATION FORMALLY ESTABLISHED

HK170220 Beijing ZHONGGUO XINWEN SHE in Chinese 1505 GMT 16 Nov 84

[Report: "The Shanghai-Hong Kong Economic Development Association Formally Established"]

[Text] Shanghai, 16 Nov (ZHONGGUO XINWEN SHE)--The Shanghai-Hong Kong Economic Development Association, a nongovernmental cooperative organization aimed at uniting the economic circles of Shanghai and Hong Kong and vigorously promoting cooperation for Shanghai's revitalization and Hong Kong's prosperity, was formally established this afternoon.

Mr Liu Jingji presided over today's inaugural ceremony. He warmly greeted the figures from Hong Kong's economic circles who came to attend the meeting.

Mr Zhang Chengzong explained the preparatory work of the association.

The meeting adopted the constitution of the Shanghai-Hong Kong Economic Development Association. Through consultation, Shanghai's Zhang Chengzong and Tang Junyuan and Hong Kong's Fei Yimin, Wang Kuancheng, An Zhijie, and Huo Yingdong were appointed as honorary presidents. Shanghai's Liu Jingji and Hong Kong's Tang Xiangqian are presidents of the association. There were 16 standing committee members including Bao Yuxing, Hu Yingxiang, Guo Xiuzhen, and Zheng Zhengxun.

Tang Xiangqian, Xu Pengfei, Hu Faguang, Hu Yingxiang, Guo Zhicheng, Tian Yuanhao, and Mrs Qiu Degeng delivered speeches one after another at the meeting expressing their resolve to further strengthen friendship, economic cooperation, and exchanges of science, technology, talented people, and information between the economic circles of Shanghai and Hong Kong and to make contributions to the prosperity of both places.

It is said that the Shanghai-Hong Kong Economic Development Association will hold its inaugural meeting in Hong Kong in the next few days.

Leading comrades of Shanghai Municipality Hu Lijiao, Wang Daohan, and Yuan Chongwu attended the meeting and extended their warm congratulations on the establishment of the association.

CSO: 4006/89

ECONOMIC MANAGEMENT

PROFESSOR TALKS TO PRESS ON ECONOMIC REFORM

OW161834 Beijing XINHUA in English 1320 GMT 16 Nov 84

[Text] Beijing, 16 Nov (XINHUA)--The current economic restructuring in China will not lead to capitalism, Professor Su Shaozhi of the Institute of Marxism, Leninism and Mao Zedong Thought, said here today.

At a luncheon with foreign and Chinese journalists, he said, the fundamental prerequisite to the reform of the economic structure in China was that it was carried out under the socialist system.

Su, who heads the institute under the Chinese Academy of Social Science, said: "The restructuring is to achieve prosperity for all but not necessarily at the same time. A polarization creating rich and poor groups will not take place."

"There is only one socialism, but there are many roads towards it," he stressed. "We will adhere to the principles of public ownership of the means of production reigning supreme, distribution according to work, management of state affairs by the working people and socialist democracy."

He noted that the superiority of the socialist system had not been brought into fuller play because socialist states were estabished in economically backward countries. And it took some time to develop the productive forces. A tortuous path sometimes was unavoidable when experience was lacking.

However, he stressed, emphasis on public ownership of the means of production nationwide made it impossible for China to turn capitalist.

Su said Chinese theoreticians had been planning urban reforms since the Third Plenum of the 11th Central Committee of the chinese Communist Party in 1978.

They followed the Central Committee's decision on reform on the econmic structure, "by seeking truth from facts instead of seeking quotes from Marxist classics.".

"The principle is integration of Marxism with Chinese reality." he said.

CSO: 4020/35

BRIEFS

WORKER-TURNED-ENTREPRENEUR COMMENDED--According to a report of the Shaanxi Radio station, (Dong Xinji), a former worker of the Labor Service Corporation under the Weinan City Economic Commission in Shaanxi Province, received no wages since he left his job. Last June, of his own accord, he made available 120,000 yuan and established (Huashan) film and television corporation, the first such private corporation in our country. He himself assumed the posts of general manager and vice chairman of the board of directors. Since then he has traveled to Beijing three times and made a trip to Guangzhou to learn video- and audio-recording techniques and scientific management methods at his own expense. In August and September, his corporation turned out the first full-length television film, "Time Is Money," on the theme of economic development of the Shenzhen Special Economic Zone. For this, he received a commendation and encouragement from Wang Zhen, member of the Political Bureau of the CPC Central Committee, and other leaders. [Text] [Beijing Domestic Service in Mandarin 1200 GMT 9 Nov 84 OW]

CENTRAL CHINA ECONOMIC INFORMATION CENTER--The Central China Economic Commission Information Center was established in Wuhan City on 8 November. The Economic Commission of Jiangxi Province and economic commissions of Nanchang, Jiujiang, Jingdezhen, Shangrao, and Ganzhou cities have joined this information center. The Central China Economic Commission Information Center is an open type economic information network that stresses development of relations among enterprises and regions and is an important part of the network of economic commissions. Participating in this economic information center are Hubei, Anhui, Hunan, Jiangxi, Henan, Shanxi provinces and economic commissions and information organizations of Wuhan, Hefei, Changsha, Nanchang, Zhengzhou, and 52 other cities. The Central China Economic Commission Information Center has set up a general office in Wuhan City. It publishes HUAZHONG XINXI DAOBAO [CENTRAL CHINA INFORMATION GUIDE] in Zhengzhou City and has set up a true information center in Changsha City. [Text] [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 15 Nov 84 OW]

STATE CONTRACT WORKERS EMPLOYMENT--Beijing, 9 Nov (XINHUA)--About 210,000 contract workers were employed by state-owned enterprises in China in the first nine months of this year, according to the State Statistical Bureau. This brought the total to 780,000 since the labor contract system was restored in 1979. This trend is expected to further grow in the coming years. Most of the workers were urban school graduates or peasants. They are now working in the coal, metallurgical and oil industries as well as in construction and service trades. The new system is being encouraged in such sectors as an alternative to the regular system in recruiting new workers. Officials said the new system would enable enterprises to get qualified workers and help worekrs choose their own careers and better employ their talents. Jiangsu Province, where township industries are burgeoning, has the largest number of contract workers, followed by Beijing and Shanghai municipalities. [Text] [Beijing XINHUA in English 1039 GMT 9 Nov 84 OW]

CSO: 4020/35

ENERGY DEVELOPMENT POLICY WITHIN MODERNIZATION PLANS

Cologne ZEITSCHRIFT FUER ENERGIE WIRTSCHAFT in German Sep 84 pp 161-170

[Article by Rolf Kappel, Institute for Economic Research, Technical University, Zurich: "China's Energy Policy: Options and Limits in the Scope of the Modernization Strategy"]

1. The Significance of Chinese Energy Policy

The increasing international interest in China's energy policy is largely characterized by four factors. First: At a (commercial) primary energy output of 671 million tons SKE [hard coal equivalent] (1982 primary energy consumption: 648 million tons SKE), China is one of the world's major energy producers and consumers. Given the in some respects closely interlinked (energy) world markets, developments in such a large producer and consumer country may no longer be neglected. Second: China possesses very extensive energy resources; the efficient development of these resources--likely in the long run to propel the country to the status of a regionally important energy exporter--cannot in essential sectors be carried out without international cooperation. Third: Since 1979 China has entered a new stage of development, that we may describe by the terms "modernization" and "opening to the outside." Both these trends have very quickly resulted in an unprecedented intensification of economic cooperation with the Western industrial nations. Fourth: Secure and adequate energy supplies for China represent a crucial prerequisite for the smooth flowing growth of economic prosperity, which will basically help decide China's future role as a partner in international business. China's national energy policy also gains increasing importance from the general standpoint of international economic and political relations.

In a socialist country, the development of the energy industry and energy policy is much more intimately connected with all other sectors of the economy and economic policy than it is in a market economy. This necessarily arises from the fact that virtually all decisions on allocations and production levels as well as payments and "price formation" are political decisions, based on more or less well coordinated plans. The proper understanding of energy industrial development and energy political options and limits therefore requires us to consider total economic developments as well as general economic guidelines. Even a brief retrospective is enough to show that the development of the Chinese energy industry has always been dominated by the prevailing doctrines of economic policy.

2. Developments since 1949

In the first half of the 1950's, China pursued a development policy modeled on "the Soviet example." It was based on the build-up of a centrally managed planned economy and industrialization emphasizing large units and largely concentrating on the development of heavy industry. Soviet economic aid (also, to a very minor extent that by other CEMA countries) involved the dispatch of experts, extensive credits and the supply of agricultural and industrial investment goods. The same applied to the expansion of the country's energy supply system. Almost all basic equipment in energy supply in operation even now, was originally imported from the Soviet Union.

This first stage of the country's technological reequipment ended when mainly ideological differences resulted in the break in relations with the Soviet Union, and Mao (1957) proclaimed the "Great Leap Forward." Up to that time, industrialization had proceeded almost exclusively in the urban centers. In future, the mobilization of the masses was to involve the rural regions also and be pursued exclusively with the resources and capacities available in the country. Thus began an industrialization unprecedented in history. Iron, steel and other basic materials as well as agricultural and industrial capital equipment were manufactured in hundreds of thousands small factories that were indeed spread across the entire country. The further expansion of energy supplies--a key factor for the success of the campaign--followed the same model. In addition to coal production in large mines, up to 20 million farm workers toiled in tens of thousands of small mines to secure energy supplies for the launching of the industrial age. Coal and electricity output rose by more than 200 percent from 1957 to 1959.

This unique attempt to compel a country's industrialization within an archaic system of rural communes soon collapsed. The products manufactured in small factories with technically inadequate equipment tended to be of poor quality and indeed were often quite unusable. Though they raised output statistics to a substantial extent, they did not increase the efficiency of the economy. Entirely neglected in the course of this industrialization campaign was the manufacture of goods in daily demand and, in particular, farm production. The 1960 harvest was 20 percent below 1957 yields, and hunger and misery ensued. Mao's dream of the "milestone" of development had turned into the "millstone"[2] of an unsophisticated ideology.

The first half of the 1960's was a time of restructuring and adjustment, when the attempt was made to remove the "imbalance" between industrial and farm production. This resulted in the policy of "the two legs," in effect 1966-1976, and a kind of "late Maoist" stage: Roughly the same priority was accorded agricultural and industrial development, though industrial progress was supposed to assume a "leading role" (at least in theory). Though the sometimes serious political unrest during the "cultural revolution" tended to obstruct economic development, it was possible to stabilize most sectors of the economy by the mid-1970's and to once again achieve quite high growth rates.

The industrialization of the rural regions, aimed at by the "great leap," was successfully pursued in this phase. Industrial plants supplying mainly agriculture and the rural population, raised output as much as did agriculture itself. Once again energy supplies for the rural regions assumed a particularly important role. Thousands of the coal mines closed after the collapse of the "great leap" were reopened and subsequently obtained better equipment. Even now more than 20,000 small and medium mines (up to about 50,000 tons annual production) represent one of the two pillars of (commercial) rural energy supplies. To be considered the second pillar are 100,000 small hydroelectric power plants, thousands of which were built in the 1960's and early 1970's. The progress of agriculture and rural industries achieved up to now would have been impossible without these decentralized energy supply systems.

3. The New Doctrine of "Four Modernizations"

When the socalled "pragmatists" assumed power after Mao's death in 1976, the change to the current doctrine of the "four modernizations" occurred within a short time.[3] According to the notions of the new leadership elite, agriculture, industry, defense and science and technology were to be fundamentally modernized and reformed so as to at last enable the world's most populous country to become a powerful industrial nation, in terms of both economics and politics. This new development strategy is extremely important from several aspects and gives rise to many specific reform problems. To begin with, the desired modernization aims to technically reequip virtually all sectors of the economy, and that implies a tremendous need for money and an equally considerable need for training skilled technicians and managers in enterprises and the administration. Secondly, modernization in the sectors of technology transfer, trade and finance requires a new kind of cooperation with the industrial nations organized in a market system, from whom the equipment is to be imported. Ranging from the expansion and reform of the legal and banking systems via the establishment of trading organizations to the development of codes for "joint ventures," the reforms needed in China imply fundamental innovations after more than 20 years of disengagement from the world economic system. Thirdly--and this very heart of the reform is intimately connected with the two considerations mentioned before--market economic incentive systems and the methods of market economic management are to be integrated in the formerly excessively rigid planning system. Even though planning (increasingly decentralized) is to retain the starring role, this attempt at integration represents a significant change in the economic system.

Some consequences of the reformist approach are already discernible. Since 1980 employee incomes have been raised in a manner quite unprecedented in China, in order to stimulate the people's motivation to work by directing them to previously stifled consumerism. At the same time wages and salaries were geared more definitely to performance criteria, in order to achieve improvements in productivity. Since the provinces were increasingly granted greater financial and decisionmaking autonomy, the "lower levels" in the economy generally have been accorded greater powers and scope. Production surpluses of more and more goods may now be sold freely, and taxation of enterprises is to be gradually reduced to expand the "free" scope of investments.

Unemployment, too, is affected by the reform. Youths, in particular, who cannot be placed in jobs after graduation from school are called upon to seek productive work "on their own"; successful small entrepreneurs are duly lauded in the mass media.

By such and similar measures the Chinese leaders try on the one hand to stimulate the workers' willingness to work hard and efficiently and, on the other hand, to improve the flexibility and self-regulating capacity of an economic system that, in the past, repeatedly suffered from some serious and growth obstructing bottlenecks. In part these are rather limited and very cautious experiments that should not be misinterpreted or overestimated. China is certainly not on the road to the market economy as normally understood, and the terms "controlled" or "socialist" market economy may evoke very different interpretations indeed.[4] However, the reform attempts and experiments listed must certainly be considered the advance intimations of a new age of development.

4. The Development of Energy Supplies

When we contemplate China's economic development and the development of its (commercial) energy output in the past 3 decades (Table 1), the following special features emerge: High average economic growth--about 6 percent per annum, a very substantial growth of primary energy production (and consumption) in excess of 9 percent per annum, and an evident diversification of energy output. The greatest surprise is certainly the (long-term) elasticity index of (primary) energy demand--roughly 1.5. This is a very high value even for a developing country in the process of industrialization. In general primary energy use is inefficient. At the present time, primary energy consumption per yuan gross production value amounts to 1 kg SKE and corresponds to approximately 2.5 kg SKE per U.S.$ national product. According to World Bank estimates this is more than twice the average value for developing countries with a per capita income and economic structure comparable to China's.[5]

Despite the past high rates of increase in energy output, China is still a developing country in terms of energy supplies. Currently average per capita consumption amounts to roughly 650 kg SKE, close to the average estimated value for developing countries. While 72 percent of energy go to the account of industry (Table 2), households (including service enterprises) currently use only 12 percent of (commercial) energy. Non-commercial energy satisfies 75-80 percent of household (and service sector) energy requirements. This consists mainly of firewood, rice straw and other farm wastes. The annual consumption of non-commercial energy is estimated at about 350 million tons SKE,[6] that is more than 50 percent of total commercial primary energy consumption. I will later deal in greater detail with the ecological problems involved.

5. Wealth of Resources

The various energy sources' share in the primary energy yield very plainly reflect the availability of resources in the country (Table 3). In first place among China's energy resources is coal. On the occasion of the 1978

Table 1--Growth of Energy Output and the Gross National Product

	(1) Kohle (Mio t)	(2) Erdol (Mio t)	(3) Erdgas (Mia m^3)	(4) Wasserkraft (TWh)	(5) Elektrizitat (TWh)	(6) Primarenergie gesamt (Mio t SKE)	(7) Sozialprodukt[a] (Wachstum p.a.)	(8) Elastizitat (6)/(7)
1952	66.49	0.44	0.008	1.26	7.26	48.7		
52-57[b]	(14.5 %)	(27.3 %)	(54.3 %)	(30.8 %)	(21.6 %)	(14.9 %)	8.9 %	1.67
1957	130.73	1.46	0.07	4.82	19.34	97.6		
57-65	(7.4 %)	(29.2 %)	(41.3 %)	(10.1 %)	(16.9 %)	(8.5 %)	3.4 %	2.50
1965	231.8	11.31	1.11	10.41	67.60	187.0		
65-70	(8.8 %)	(22.1 %)	(20.9 %)	(14.5 %)	(11.4 %)	(10.6 %)	8.3 %	1.27
1970	354.0	30.65	2.87	20.46	115.86	310.0		
70-75	(6.4 %)	(20.2 %)	(25.3 %)	(18.4 %)	(11.1 %)	(9.5 %)	5.6 %	1.69
1975	482.24	77.06	8.85	47.63	195.84	488.6		
75-80	(5.2 %)	(6.6 %)	(10.0 %)	(4.1 %)	(8.9 %)	(5.6 %)	6.2 %	0.90
1980	620.13	105.95	14.27	58.21	300.62	640.9		
80-82	(3.6 %)	(-1.8 %)	(-10.2 %)	(12.3 %)	(4.4 %)	(2.8 %)	nv	nv
1982	666.00	102.00	11.50	73.40	327.70	677.4		
52-80	(8.3 %)	(21.7 %)	(30.7 %)	(14.7 %)	(14.2 %)	(9.6 %)	6.2 %	1.54
52-82	(7.9 %)	(19.9 %)	(27.4 %)	(14.5)	(13.5)	(9.2 %)	nv	nv

Key:

1. Coal (million tons)
2. Crude oil (million tons)
3. Natural gas (billion cubic meters)
4. Hydro power (tera watt hours)
5. Electricity (tera watt hours)
6. Total primary energy (million tons SKE)
7. National product (annual growth)
8. Elasticity (6)/(7)

a) At constant prices. b) Average annual growth rate. On conversion to SKE, see appendix.

Source: World Bank (1981), Annex E, p 2; BFAI (1983).

World Energy Conference, geological resources were figured at 1,400 billion SKE.[7] Demonstrated reserves are estimated at about 416 billion tons SKE and the reserves currently available for profitable mining at 21-18 billion tons SKE.[8] China thus disposes of exceptionally large coal deposits that will permit a considerable rise in present-day output without having to fear a shortage of resources in the foreseeable future.

The biggest and best coal deposits are located in the north of the country; around two thirds of all reserves are to be found there. This concentration raises some serious transportation and supply problems because the capacities of the rail network have been so excessively burdened for years that transportation to the industrial centers in the country's coastal regions cannot always be guaranteed. The average thermal value cited for China's hard coal deposits is 5,000 kcal [kilo calorie] per kg, and for

Table 2--1982 Energy Balance

	(1) Kohle (Mio t)	(2) Oel (Mio t)	(3) Gas (Mia m3)	(4) Elektrizitat Wasserkr (TWh)	(4) Elektrizitat Total (TWh)	(5) Total kommerziell	(6) Nicht kommerziell	Total
(7) Primarproduktion	666 0	102 0	11 5	73 4				
(8) Inlandsverbrauch	652 0	92 0	11 5	-	327 7			
(9) Elektrizitatsproduktion	143 4	14 2	1 6	-	52 4			
(10) Industrie	391 2	46 5[a]	9 9	-	222 8			
(11) Transport	32 6	16 1[a]	-	-	1 0			
(12) Landwirtschaft	-	14 1[a]	-	-	23 0			
(13) Haushalte und Dienstlestg	84 8	1 1	-	-	28 0			
(14) Export / Lagerung	14 0	10 0	-	-	-			
	(15) in Mio t SKE[b]							
(7) Primarproduktion	476	149	15	31	-	671	350	1021
(8) Inlandsverbrauch	468	134	15	-	139	648	350	998
(9) Elektrizitatsproduktion	92	21	2	-	22	22	-	22
(10) Industrie	294	67	13	-	95	469	nv	469
(11) Transport	16	23	-	-	1	40	nv	40
(12) Landwirtschaft	-	21	-	-	10	31	nv	31
(13) Haushalte und Dienstlestg	66	2	-	-	11	79	350	429
(14) Exporte / Lagerung	8	15	-	-	-	23	-	23

Key:

1. Coal (million tons)
2. Oil (million tons)
3. Gas (billion cubic meters)
4. Electricity/hydro power total (tera watt hours)
5. Total commercial
6. Total non-commercial
7. Primary production
8. Domestic consumption
9. Electricity output
10. Industry
11. Transportation
12. Agriculture
13. Households and services
14. Exports/storage
15. Million tons SKE

a) My own estimates with 1979 structural data. b) Values are rounded off. On conversion see appendix.

Source: World Bank (1981), Annex E, p 2; BFAI (1983)

brown coal 3,300 kcal/kg,[9] due to the lack of preprocessing, both types are of relatively inferior quality when reaching the consumers (industry, power plants and households). In some regions of the country they in fact cause very severe air pollution.

To be listed in second place are the reserves of hydro power available to China. The hydro power potential suitable for development is estimated at 1.9 million GWh/a [giga watt hours per annum] or 81 billion tons SKE. Used in 1982 were only 73,000 GWh/a, accounting for about 22 percent of electricity output. However, similar to coal, hydro power reserves also

are highly concentrated. Some two thirds of the reserves are located in remote and rather inaccessible regions in the southwest of the country. Consequently they require transportation and distribution systems that are very expensive in technical and financial terms. Already this has resulted in a serious bottleneck in China's electricity supplies. According to Chinese estimates, 20 percent of the country's industrial capacity is unused at all times due to grid shortages; in some provinces the supply deficits may go as high as 30 percent.[10] Still, in view of power plants and grid sections planned and already under construction, it is to be assumed that hydro power will be utilized to a far greater extent in the 1980's.

By comparison with coal and hydro power, China's exploitable reserves of crude oil and natural gas are very minor. Available estimates, obviously highly tentative due to the inadequacy of data, reckon with 2.7-4.2 billion tons SKE for oil (in 1982 about 1.1 billion had already been extracted) and around 175 million tons SKE for gas. Admittedly, of late various reports of alleged major oil and natural gas finds on land and in the China Sea have made the headlines. Preliminary figures of 12.7-14 billion tons SKE were mentioned for oil deposits (half each on land and in the ocean), the possible gas deposits were estimated at 11-12 billion tons SKE (about two thirds on land, one third in the ocean). Deposits of oil shale are unofficially assessed at about 400 billion tons SKE, and several promising geological formations are leading to the assumption of substantially greater resources.[11] The country is generally so underexplored that the data on oil and natural gas deposits may still change quite radically.

The same applies to uranium deposits in China, currently reckoned to be 800,000 tons.[12] It is to be expected that the Chinese leadership's plans for nuclear energy (see below) will have the result that data on more than ad hoc identified reserves will be available in the foreseeable future. Other "unconventional" resources, such as geothermal energy and solar energy potentials, are currently ascertained on a limited regional basis only. Though solar energy, in particular, is well to the fore in long-range Chinese energy planning, systematic and realistic assessments of the potential are not yet to hand.

Table 3--Regional Distribution of Demonstrated Reserves (1981), in million tons SKE

		(1)	(2)	(3)	(4)	
	Region	Kohle[a]	Wasserkraft[b] (technisch erschließbar)	Erdol	Erdgas	Total
(5)	Nordosten	13'500	1'600	1'095	33	16'200
(6)	Norden	273'900	1'000	570	7	275'500
	Subtotal	287'400	2'600	1'665	40	291'700
(7)	Osten	29'100	2'900	375	18	32'400
(8)	Zentraler Suden	15'600	12'600	120	3	28'300
	Subtotal	44'700	15'500	495	21	60'700
(9)	Nordwesten	39'000	8'000	540	30	47'600
(10)	Sudwesten	45'000	55'100	20	94	100'200
	Subtotal	84'000	63'100	560	114	147'800
	Total	416'100	81'200	2'720	175	500'200

S 5

[Key on following page]

Key:

1. Coal
2. Hydroelectric power (technically exploitable)
3. Crude oil
4. Natural gas
5. Northeast
6. North
7. East
8. Central south
9. Northwest
10. Southwest

a) Hard coal at 5 million kcal/ton and brown coal at 3.33 million kcal/ton. For other conversion factors see appendix.
b) Assumed life of the hydroelectric power potential: 100 years.

Source: World Bank Report (1981), Annex E, p 5.

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6. Development Problems in Energy Supply

China may thus be said to dispose of exceptionally voluminous energy resources which--presuming inexpensive production--will, in the long run, guarantee it secure supplies. Nevertheless, it is to be expected that the country will confront serious supply problems in the 1980's and early 1990's, and these might once again obstruct the planned smooth flowing growth. The official growth targets are anything but modest: The national product is to quadruple between 1980 and 2000; this means a more than 7 percent annual growth.[13] It is admitted, though, that the necessary "readjustments in the 1980's" will not permit "a fast rate of economic development."[14] Evidently, the main burden of the planned growth requirements is to be shifted (to make sure?) to the 1990's. Yet even "modest" 4-5 percent growth rates in the 1980's will confront energy supplies with major problems, because economic, technical and organizational obstacles stand in the way of the necessary expansion of production and distribution capacities.

6.1 Coal

Due to wrong decisions adopted in the past, the outlook is none too good with regard to the increase in energy output. In the coal sector (certainly going to be called upon for the major contribution), it is already noticeable that rapid output growth was unduly emphasized in recent years, while new developments were criminally neglected.[15] Time is most pressing now. Lead times for medium to large developments amount to 5-10 years, in part because China has relatively little in the way of technical equipment for sinking deep shafts. Even if more modern equipment is going to be imported from industrial countries in the course of the coming years, it will hardly be possible to cut lead times due to the initial difficulties to be expected.[16]

According to World Bank estimates, the best result possible by 1990 is a rise in coal output from 660 million tons in 1982 to 900 million tons, in other words an increase in output by about 3.8 percent per annum.[17] In fact these relatively low growth rates already imply some rather optimistic assumptions on the successful modernization of production. China's coal mining is technically obsolete by comparison with other countries, and productivity is correspondingly low. Average output in underground workings amounts to 0.5 tons per miner per day, in strip mining to 2 tons. In comparable

geological conditions, India achieves 2 tons in underground workings, Western Europe 3-4 tons.[18] Only a fraction of Chinese coal production is mechanized, and the output increases mentioned will require substantial investments. The prospects for financing such investments are difficult to appraise within the framework of the capital and foreign exchange intensive modernization policy.

Even if the financial problem can be settled, it is questionable whether the tasks involved in modernizing and expanding the production plants can be accomplished quickly enough: Indispensable prerequisites for any effective expansion of production capacities are improved training for the technical personnel, extension of the rail and waterways networks including the necessary loading facilities, as well as the comprehensive expansion of the high-voltage grid. All these systems must be implemented in a coordinated manner and, subsequently, expertly operated from the technical and organizational aspect. It is hard to imagine how the complicated and cumbersome planning and administrative system is to handle this assignment in the few years available as per plan.

Furthermore, current Chinese energy policy does not clearly reveal what exactly is to be understood by the "highest" priority for the expansion of coal output.[19] Since 1979, the Chinese leadership has pursued very different strategies. At one time, to ease transportation problems, coal output was to be raised in the industrially important south of the country, though resources there are relatively minor. At another time coal output was to rise in the north--wealthy in resources but industrially underdeveloped--, because it would be possible there to produce 4 times more rapidly and 40-50 percent more cheaply than in the south; logically the extension of the transportation systems was accorded high priority also. Finally there was the--regionally undifferentiated--directive for fast modernization and the quick construction of the largest possible production plants in order to achieve large-scale yields. Though these directives have been pursued for quite some time, we may well wonder whether they will really last. By the emphasis on the expansion of large-scale plants and in view of the limited potentials for quickly expanding the transportation system, the Chinese are running the danger of neglecting energy supplies for farming and rural industry. This, in turn, might mean the recurrence of noticeable shortages of basic goods, that had been gotten rid of only recently.

6.2 Oil and Natural Gas

Short and medium-term prospects for oil and natural gas production also tend to be rather modest. Until recently, an actual decline in the production of the (relatively far more important) oil threatened, because output at the largest Chinese oil field (Daqing--currently supplying about 50 percent of total production--102 million tons) has been declining since 1980.[20] Only recent oil and natural gas discoveries[21] in the Karamay field promise definite increases in output from 1985 on. According to Chinese reports, the annual production of crude can now be expected to rise to 140 million tons by 1990, an average growth rate of 4 percent per annum.[22] This seems to be a realistic assumption for natural gas also, though little is as yet known about its future expansion. The estimate of the expected rise in crude output differs sharply from the target proclaimed in 1977, according

to which 10 oil fields of the same size as Daqing were to be developed by 1990. This represents a fairly typical example of the danger of overoptimistic plans, a temptation the Chinese leaders are not always able to resist.[23]

Analogous to coal production, obsolete equipment and poor training of the technical personnel represent some of the most serious obstacles to increased oil production. Various experts who had visited Chinese oil fields, reported obsolete and poorly maintained equipment as well as obsolete drilling methods and production technologies.[24] At the older oil fields, in particular, the output rates achieved per borehole often amount to only 20 percent of the technically feasible production. Even at later fields using some quite up-to-date equipment, experts note low productivity due to the inadequate training of the technical personnel and poor "field managements." Low success rates of test drillings--despite modern equipment--also indicate the lack of efficiency or the fact that the usual plan assignments spell out wrong objectives--they are geared to the numbers of test drillings instead of the rate of successful drillings.

The surmised major oil and natural gas deposits on land and in the ocean will certainly not yet contribute to energy supplies in the 1980's. On the other hand, their development will be crucial for the success of the general modernization of the energy supply system. Various multinational corporations will doubtlessly provide the technical and organizational management of off-shore deposit development. These corporations have available the capital, equipment and necessary technical and organizational know how required for such projects. Disregarding the expected increase in oil production and the foreign exchange revenue to be expected therefrom, the Chinese consider these joint ventures an opportunity for relatively quickly catching up with the efficient handling of large-scale technical projects. These projects are expected to yield multiplier effects affecting other major projects in the energy sectors and likely to considerably promote the rapid industrialization of the country in general.

6.3 Hydro Power and Thermal Electricity Production

The Chinese allocate the same priority to the further expansion of hydroelectric power as to thermal electricity production from coal. At the present moment hydropower capacities amount to about 26 GW [gigawatt] and thus account for about a third of the country's total power plant capacity (78 GW).[25] In 1982 it held a 22 percent share in electricity output. The following are crucial for the greater expansion of hydro power: First of all the country has exceptionally large reserves; secondly hydro power causes fewer environmental problems than thermal production; and thirdly water power is particularly suitable for supplying rural regions, where decentralized units with low transportation and distribution costs may be operated and tied to urgently needed irrigation systems. More than 100,000 small and very small hydroelectric power plants with a total 16 GW capacity are in operation now and will be further expanded. The Chinese reckon that 1.5-2 GW capacity per annum can be added in the course of the 1980's by the construction of small and medium hydroelectric plants. This corresponds to an average about 6 percent annual growth rate. The plan appears realistic, because lead times are usually quite short; even power plants up to about 600 MW

[megawatt] can be completed in 4-6 years. On the other hand, no contribution is to be expected in the 1980's from the half dozen giant river power stations (up to 25 GW) now in the planning and construction stages.

Though the Chinese have long been technically capable of constructing and operating thermal and hydroelectric power plants, considerable modernization is proceeding here also, and more will be required in future. The average conversion efficiency of coal-fired power plants, for example, was improved from 3,700 kcal/kWh in 1979 to 3,200 kcal/kWh in 1982.[26] Future successes of this type, however, require the use of giant generators, and at the present the Chinese are not yet able to construct these. While industrial countries with comparable power plant capacities operate many generators between 300-600 MW, the usual generator size in Chinese medium to large plants is between 50-200 MW. In view of the tremendous unsatisfied electricity needs of the country, the scale yields to be achieved by large generators represent a reserve that definitely ought to be exploited as quickly as possible and should certainly not be neglected.

As mentioned earlier, the inadequate transport networks and distribution grids represent a very sensitive bottleneck. According to World Bank estimates, the country currently lacks about 10,000 km high-voltage lines (above 100 kv [kilovolt]); China does not yet mass produce any transmission lines for 500 kv or more.[27] If the currently rampant underutilization of industrial capacities is to be avoided in future, the expansion of the more than 30 grids will therefore need much greater rates of increase than the expansion of capacities.

6.4 Nuclear Energy

According to official interpretations, the Chinese approach to nuclear power has been determined by the bottlenecks in energy transportation. The preliminary work on the construction of a 300 MW high-pressure water reactor began in late 1982. The experiences gained in nuclear research and the operation of some 40 research reactors are to be combined, so to speak.[28] The plant, designed as a pilot project for the future nuclear industry, is to be largely equipped with machinery made in China. In addition, China is currently negotiating with France and England about the importation of 900 MW class reactors (first negotiations were also lately reported by other industrial countries, including the FRG).[29] A plant with two 900 MW reactors is to be constructed in the southern Guangdong Province as a joint venture with a Hongkong electricity corporation. By the end of the 1990's, China intends to have a total of about 5-6 GW nuclear power in the grid, to serve mainly the supply of industrial conurbations in the coastal region. This program of expansion would serve to make available from nuclear power about 2 percent of electricity production.[30]

With respect to its nuclear energy program, China is confronted with an even more serious shortage of trained personnel than is the case in the other sectors of energy supply. The highly qualified but relatively small elite of nuclear scientists must not blind us to the fact that the construction of a nuclear industry, the manufacture and commercial operation of large reactors, will initially require extensive and very time consuming training

programs. Another possible obstacle is the need for capital resulting from the preliminary nuclear program. According to Chinese estimates, investment costs per installed kilowatt output will be at least 60 percent higher for nuclear energy than those needed for hard coal power plants.[31] In view of the experiences in Western industrial countries and the U.S.$5-6 billion project sum appropriated to the double block plant in Guangdong ($2,800-3,300 per kW), the figure of 100 percent appears to be far more realistic.

Of course estimates of investment costs largely depend on whether the Chinese will apply the stringent safety standards of Western industrial countries, or whether they will try to reduce these costs by lowering standards. Observers are not at all sure on this point. In general, the risks of nuclear energy, whether with regard to operation or final disposal, are described in the mass media as minor and definitely manageable from the technical aspect. This very optimistic assessment of the problems possibly arising from the use of nuclear energy is confirmed by the reports lately encountered, according to which China may be willing to offer possible final disposal in the huge central regions of the country to the industrial countries beset by disposal problems.[23]

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7. Production Increases and Consumption Trends

When we summarize the development potentials of (commercial) energy production outlined above, the image emerging for the remaining 1980's and the first half of the 1990's looks somewhat like the following:

-- It would probably be possible to raise coal output by around 4 percent annually;

-- Annual 4 percent rates of increase seem a realistic assumption with respect to oil and natural gas production, too;

-- It will most likely be possible to raise hydro power capacities by 6 percent per annum;

-- We thus get an overall average rate of increase in primary energy production of around 4 percent per annum; it is possible that electricity output might achieve a 6 percent annual expansion--including transportation and distribution capacities.

These assessments should not be considered precise forecasts. They merely outline potential developments discernible at this time, and which could be affected by political decisions of incalculable impact. It does seem certain, though, that the large growth rates of energy out, achieved until the mid-1970's, will not continue at least for the time being. In view of the high long-range elasticity index of (commercial) energy demand, the question arises what may or should happen on the consumption-side to as far as possible avoid economic disruption despite the reduced increase in supplies. This involves three groups of issues. First: Is it to be expected that the transition from non-commercial to commercial energy consumption

will speed up? What needs to be done in this connection? Second: Is it to be expected that average industrial energy consumption per output unit will decline more or less automatically as a consequence of structural developments? Third: What possibilities for energy conservation can or should be used?

8. Non-commercial Energy Consumption--An Ecological Crisis Factor

As briefly mentioned earlier, non-commercial energy meets about 75-80 percent of the energy consumption of private households (and many service enterprises, in part also agriculture). We must assume that these conditions will not essentialy change in the coming years. Due to the continuing latent energy shortage to be expected, households will in future also be compelled to keep consumption extremely low. Despite rising incomes and the increasing urbanization of a still growing population, the growth rate of household commercial energy consumption is unlikely to be above the growth rate of total (commercial) energy production. "Demand control" here is largely replaced by restrictions on supplies.

Despite such rigorous rationing, the Chinese Government may not neglect this immense demand sector. It will instead be compelled to pursue an explicit policy of non-commercial energy supplies. The consequences are serious. More than 800 million people in rural households as well as innumerable service and agricultural enterprises satisfy their energy needs mainly from the biomass and thereby cause the progressive destruction of the ecosystem. The use of firewood, for example, has (for centuries) contributed to the deforestation of immense regions. At the present time only about 12 percent of China's total land area are still forested (compared with the FRG's about 30 percent), and hardly any intact wooded regions remain, especially in the economically important and densely settled coastal regions.[33] The effects are felt ever more intensely: Soil erosion by wind and water, microclimate changes and dropping groundwater levels, drought in spring and floods in autumn as well as the steadily increasing salinity of the land. At the same time the burning of rice straw and other farm wastes results in definite losses of yield in farm production, because rice straw might serve as feed for livestock and other wastes as fertilizer.[34]

China's energy policy is here confronted with the need to offer economical and ecologically bearable energy technologies to replace the traditional energy supplies. Promoted by state aid at the present are mainly biogas plants, so-called "conservation furnaces," solar energy systems and wind power plants. So far, however, only the biogas plants are worth mentioning. According to Chinese reports, about 9 million biogas plants are in operation.[35] This spectacular sounding figure must be be looked at with caution. The biogas plants produce no more than a maximum of 3 million tons SKE per annum. Even when we take the greater efficiency of biogas burners into account, this contribution is unlikely to exceed 1.5 percent of total household consumption.[36]

On the other hand, this small percentage should not be undervalued, because China has resolutely backed the spread of biogas plants for a number of

years, and a wide expansion of biogas production is definitely to be expected in future also. The Chinese are right to insist that, from the aspect of economics and the ecology, this technology offers one of the few realistic possibilities for improving energy supplies for rural households. To a certain extent this also holds true for the "conservation furnaces." Compared with traditional furnaces, these allow efficiency to double (from 10 percent to 20 percent). Unfortunately this exhausts the list of the currently available and economically justifiable substitution technologies. The development of cheap solar and wind power plants is still in its infancy (due to their capital intensity, these systems are too expensive), and no early breakthrough is to be expected, permitting a widespread adoption of these systems.

These briefly outlined problems suggest that energy supplies for the public in the enormous rural regions of China represent a separate group of problems facing the energy industry. In addition to energy political measures, the solution of these problems will require coordinated efforts by agriculture and environmental policies. In a country where more than 300 million people are employed in farming and, with the available arable area, barely manage to feed more than a billion, the diminution of ecological destruction must turn into more than a melodious phrase. In this context I must once more point out the ecologically very harmful coal consumption that is bound to increase even more in future. As currently barely 10 percent of the (usually) impure coal are cleaned, households, industry and electricity plants (without adequate filter plant) cause some frightening air pollution in the industrial conurbations of the coastal region. The pollution recorded in China and caused by the energy supply of the rural as well as urban regions, demonstrates far more drastically than in the industrial countries the possible severity of the so-called "economic-ecological target conflict. It also shows how difficult it can be to balance the pros and cons. At the present time, the solutions that are realistic in technical and economic terms and also feasible in political terms, are restricted to interventions at some points only. A comprehensive package of political measures is needed but, on the whole, helplessness still prevails.

9. Change of Industrial Structure and Energy Consumption

It will be decisive for changes in energy consumption due to shifts in the industrial structure, how the proportions of the heavy and basic materials industries are going to develop in the course of the country's ongoing industrialization, because these sectors are normally much more energy intensive than light industry (processing industry). In contrast to many other developing countries, China has a relatively strong heavy industry which had been steadily promoted in the past 30 years. The reforms initiated at the end of the 1970's has to some extent broken with this tradition--at least in theory. Emphasis now is supposed to be on the expansion of light industry, in order to substantially raise the supply of consumer goods. Supposing the durability of adjusted growth rates of light and heavy industry, we might expect the rates of increase of industrial energy consumption to be decidedly reduced.

The connection of cause and effect described above is already reflected in the available industrial statistics.[37] In the years 1965-1975, the

elasticity index of energy demand was about 1.48; in that period of time the average growth rate of heavy industry amounted to 10.2 percent, that of light industry to 7.7 percent (total industry: 8.7 percent). By contrast, elasticity was about 0.9 in 1975-1980, with heavy industry recording an average 7.7 percent rate of growth, light industry 11 percent (total industry: 9.2 percent). In the course of consistent plan fulfillment--reduction in the investment ratio and above average increase in light industry output--1981 industrial energy consumption declined by 2.5 percent compared with 1980, while total industrial output rose by 4.1 percent. However, already in 1982, a 9.9 percent growth in heavy industry propelled industrial energy consumption upward by 6.2 percent (light industry growth: 5.7 percent; total industry: 7.7 percent).

The effect of structural changes on energy consumption is thus unmistakable. However, it would be deceptive to assume that the development reform is going to be automatically accompanied by steadily declining growth rates of energy consumption. Even if the expansion of light industry were to continue being emphasized by comparison with the past, it would hardly be possible to restrict heavy industry to "slight" growth rates; the planned expansion of light industry, the transportation systems and other infrastructural facilities as well as the ambitious housing construction programs will require capital goods in such volume as to preclude the simple abandonment of the growth of heavy industry. In China's present stage of industrialization, goods of the heavy industries are still of the utmost importance. In other words, no noticeable reduction of the high elasticity index of energy consumption can be achieved automatically by a structural change foreseeable in the medium term; instead it will require a definite policy of conservation.

10. Energy Savings

Since the late 1970's, it has certainly been recognized that the prevailing and highly inefficient energy utilization presents a major conservation potential--to be indeed considered one of the most important sources of energy. Not much is yet known about the costs likely to arise by these savings. However, after early experiences, it may be assumed that substantial savings could initially be achieved at relatively small marginal cost. At the present time, conservation policy includes the following measures:

-- Improved pre-processing of primary energy sources (washing and sorting of coal, better extraction and refinement of crude oil);

-- Replacement of obsolete boilers and furnaces by new and more efficient plant;

-- Utilization of waste heat, use of thermal-power coupling;

-- Systematic control of energy flows in large factories (installation of thermostats, plotting of energy flow diagrams and consumption statistics);

-- Encouragement of research and development in the field of modern energy conserving production processes.

According to Chinese estimates, use of these measures has saved some 25 million tons SKE primary energy in 1982. However, it will certain take several years to accomplish the comprehensive introduction of such measures. This is due not only to the size of the country and the sheer numbers of factories involved but, and above all, to the lack of technical knowledge as well as to organizational and economic obstacles. The necessary technical knowledge is largely absent in particular for the ascertainment of energy flows, the tracing and utilization of conservation potentials. The Chinese leadership is making a strenuous attempt to set conservation going by the establishment of research and advisory institutions as well as by constant admonishments about the necessity to improve energy management. Unfortunately it takes a long time to train specialists whose knowledge of technical and economic problems of energy conservation is presently rather slight. Another problem not as yet settled is the allocation of the necessary capital or the introduction of a reasonable duration for the writing off of obsolete boilers and furnaces. Moreover, the planning and administrative apparatus remains a source of delays, because policy must be transmitted to the factories via innumerable plans, targets and directives.

It is not surprising, therefore, that foreign observers--and many Chinese experts--call for increases in energy prices in order (outside cumbersome plans) to use price signals to emphasize the energy shortage and encourage more efficient use. The prices of some oil products, in particular, are well below the world market level (see Table 4). In 1980 at least the reconversion of thermal plants from oil to coal was made mandatory, and since 1982 the burning of heavy heating oil or crude oil has been subject to a special tax. In general it is often complained that energy prices are centrally fixed for the country as a whole (with the exception of a few recent experiments with flexible and load-related electricity prices), although production costs tend to differ sharply in the various regions.

Up to now the Chinese leaders were not prepared to carry out price adjustments and use this "market conformist" tool to intervene in the economy. Except for 1979 price rises relating to gas and coal for agriculture and industry (gas: 25 percent, coal 29 percent), energy prices have remained virtually constant since the 1960's.[39] As a rule, fear of inflationary effects, economic adjustment problems and political difficulties is considered the main reason for this hesitancy.

11. Summary and Outlook

Virtually all studies on China's development reform in general and the development of the energy industry in particular count among the most stubborn obstacles the tremendous investment requirements and the equally tremendous demand on the educational system. In this context, the experiences of recent years show that the problem of capital shortage--interpreted as a problem of affordability--may very likely be easier to manager, though the total of modernization projects with their still not exactly calculable capital requirements will probably suffer some cuts due to the shortage of money and, in particular, foreign exchange. Still, by reason of the limited availability of appropriately trained specialists, modernization

Table 4--Energy Prices in China and on the World Market

		China	Weltmarkt (1)
(2)	Mineralölprodukte:		
(3)	(Preise in US-Dollar, pro Tonne):		
(4)	Rohöl	90	250
(5)	Benzin (70 Oktan)	533	310[a]
(6)	Kerosin	453	360[a]
(7)	Dieselöl	280	320[a]
(8)	Heizöl, schwer	37	220[a]
(9)	Kohle:	19–35[b]	37[c]
(10)	Elektrizität:		
(11)	(Preise in Pfennig pro kWh):		
(12)	Haushaltsstrom (je nach Gerät)	21–46	
(13)	Handel und Kleinindustrie	10–11	
(14)	Übrige Industrie	8	
(15)	Landwirtschaft	7	
(16)	Gewichteter Durchschnitt	8.5	

Key:

1. World market
2. Oil products
3. (Prices in U.S.dollars/per ton
4. Crude oil
5. Gasoline (70 octane)
6. Kerosene
7. Diesel fuel
8. Heavy heating oil
9. Coal
10. Electricity
11. (Prices in pfennig per kWh):
12. Household electricity (depending on the appliance)
13. Trade and small industry
14. Other industry
15. Agriculture
16. Weighted average

a) Excluding the oil taxes and other taxes, some of which are quite considerable.
b) At the pit head.
c) fob Australia

Source: BFAI (1983), p 10.

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can proceed only at a moderate pace, and this should hold capital needs within reasonable limits. Moreover, so far China has always succeeded in keeping under control its foreign debts by means of reciprocity transactions, various types of associate transactions and strict import regulations. The discipline to be expected to be exercized vis-a-vis foreign partners and creditors seems to indicate that China's future development will not be seriously hampered by lack of creditworthiness.

Serious shortages of capital--interpreted as allocation problem--may be caused by mistakes in investment policy. This might happen by the less than optimum selection of investment projects, by the inadequate coordination of complementary plans or the lack of qualified personnel. As shown in the preceding sections, these factors are immensely important in the energy sector also. Several studies emphasize that the choice of investment projects in the energy sectors is rarely determined by a "least cost" policy. As

a rule only the pay-back method is followed in project evaluation, while modern cost/profit analyses are used rather infrequently.[40]

The absence of coordination in the planning system repeatedly results in considerable delays before operations begin and also leads to substantial underutilization of capacities. Coal mines with tremendous production capacities but inadequate shafts, handling facilities and transport networks offer a typical example from the energy sector. Lacking knowledge and experience in the operation of modern production plants equally tend to reduce the profitability of expensive investments. China is thus beginning to learn that the economy's ability to absorb capital is lower than bold plan conceptions had initially assumed. In fact the Chinese leadership has already interrupted some major investment projects and delayed their completion in order to prevent even greater damage in the form of unproductive capital fixation.[41]

In the final analysis, therefore, the skills of the labor force and the efficiency of the planning and management system will decide in the energy industry also, whether modernization will be able to reduce or avoid bottlenecks in energy supplies. The prerequisites remain to be created by way of widespread training programs and the further pursuit of institutional reforms. Though China has a small and highly qualified scientific elite, the standard of education of the great majority of the labor force is relatively low. It must also be noted that technical and scientific knowledge is generally of a higher standard and more easily taught than even basic economics or management skills.[42] Parallel to the educational programs, administrative decisionmaking processes need to be tightened. Separate ministries for coal, oil and electricity, powers fragmented between provinces and the central government for the majority of coal mines and electricity grids as well as strong influences exerted by the ministries of railways, communications (responsible for inland shipping), chemical industry, geology and water resources, characterize the complicated structure of an unwieldy planning apparatus.[43] The State Planning Commission and the State Economic Commission, responsible for drafting medium and long-term plans and for coordinating and supervising annual plans, are confronted with tough reform problems.

The improvement of energy supplies is only one of the many development assignments confronting China. It is not possible to forecast the priority and continuity of the pursuit of the expansion and improvement of efficiency of the energy system. Yet the country's leaders will be judged by, among others, how well they succeed in fact to deploy China's rich energy resources for future development. An energy policy oriented more to economic efficiency criteria will significantly ease the accomplishment of many other tasks.

Appendix

The following caloric values (taken from Chinese data) were used for the conversion to hard coal units (SKE):

1 ton SKE is defined as 7 million kcal.

Coal (average)	5,000 kcal/kg
Coal (electricity production)	4,476 kcal/kg
Coal (industrial consumption)	5,250 kcal/kg
Coal (rail traffic)	3,370 kcal/kg
Coal (other uses)	5,090 kcal/kg
Oil, crude and oil used in industry and electricity production	10,200 kcal/kg
Other oil consumption	11,400 kcal/kg
Natural gas	9,310 kcal/m^3
Hydro power and electricity	2,943 kcal/kWh

Source: World Bank (1981), Annex E, p 2.

FOOTNOTES

1. See V. Smil (1981); a good summary of the most important postwar developments in economic policy is given by S. Paine (1981).

2. See the explanations by W. Rybczynski (1980), pp 41-82.

3. Good summaries of the new policy are available from E. Hagemann (1983), W. Klenner and K. Wiesegart (1983) and W. Klenner (1981). Other interesting explanations are available from W. Linder (1983).

4. Much uncertainty still prevails on the long-term definition of the regulative reforms, because the future Chinese social system is currently being discussed in a major debate on basic principles (see Hu Yaobang (1982). Any "private" market economic constitution is obviously excluded; at this time we can do no more than speculate on various types of a "socialist" economy. See, in particular, W. Klenner and K. Wiesegart (1983), S. Paine (1981) and W. Linder (1983).

5. World Bank (1981), Annex E, p 12. Such estimates pose many problems due to the different price valuations. Various micro investigations, though, confirm the great inefficiency of energy use; see the comments by V. Smil (1981), p 123, W. Klenner and K. Wiesegart (1983), pp 46ff, and INET (1982), pp 46ff. On their basis, the World Bank estimates appear plausible.

6. BFAI (1983), p 2.

7. King Wu (1982) and Li Guangan and Luo Yuanzhen (1983) provide a good survey of the prospects of the utilization of resources.

8. World Energy Conference (1978), p 66; World Bank (1981), Annex E, p 5. Various estimates of proven reserves now range up to 490 billion tons SKE.

9. World Bank (1980), Annex E, p 5.

10. V. Smil (1981), p 121.

11. R. Delfs (1981), p 51; C. Rivers (1981), p 57 indicates "cautious" Chinese estimates assessing offshore deposits alone at about 14 billion tons SKE. BFAI (1983) published--presumably Chinese--estimates that cite oil reserves worth extraction at 86 billion tons SKE.

12. See K. Wiesegart (1984), p 33.

13. Hu Yaobang (1982), p 14.

14. Ibid, p 17.

15. V. Smil (1981), p 117.

16. See, for example, the report by Tian Yun (1982), especially pp 47ff.

17. World Bank (1981), Annex E, pp 32ff.

18. Ibid, p 32.

19. V. Smil (I1981), pp 117ff.

20. World Bank (1981), Annex E, pp 37ff.

21. FTEE (1984), p 16.

22. BFAI (1983), p 8.

23. V. Sm il (1981), p 119.

24. See World Bank (1981), Annex E, pp 35ff.

25. BFAI (1983), p 14. On the principles and problems in the expansion of hydro power see, for example, Cheng Yuemin (1980).

26. My own computations from the 1979 and 1982 energy balances. Sources: World Bank (1981) and BFAI (1983).

27. World Bank (1981), Annex E, p 51.

28. EIU (1983), p 33; Wiesegart (1984).

29. DER SPIEGEL, No 6 (1984), p 28.

30. K. Wiesegart (1984), p 34.

31. Ibid, p 33.

32. DER SPIEGEL, No 6 (1984), p 27.

33. Dr W. Bosshard, director of the Confederate Institute for Forestry Research kindly made these figures available to me.

34. INET (1982) includes a very thorough discussion; this examines in great detail the energy supply problems of a selected province.

35. BFAI (1983), p 15. On the development of biogas production in China see Cheng Ru-Chen (1981).

36. My own computations, building on estimates by V. Smil (1981).

37. Source: CHINA TODAY (1982), pp 208ff.

38. See BFAI (1983), p 6; EIU (1982), p 17.

39. World Bank (1981), Annex E, p 9.

40. See, for example, World Bank (1981), Annex E, p 8.

41. See, for example, W. Klenner and K. Wiesegart (1983), pp 53ff.

42. Virtually all foreign advisers who worked at universities, research institutes, in planning departments or factories, share this opinion. That is not surprising: Only since 1977 has economics been reestablished at Chinese universities and is now cautiously attempting to reduce the large gaps in the knowledge of "modern" management.

43. For a brief summary of the complicated interlocking of institutions involved in energy supplies, see World Bank (1981), Annex E, pp 6f.

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11698
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STRATEGIES FOR COORDINATION OF LOCAL METALLURGICAL INDUSTRY

Beijing KEJI ZHANLUE KEJI GUANLI [STRATEGY AND MANAGEMENT OF SCIENCE AND TECHNOLOGY] in Chinese May 1983 pp 331-333

[Article by Zhang Shouqi [1728 1343 3825]: "On the Strategic Question of Development of Economic and Scientific and Technological Coordination of the Local Metallurgical Industry"]

[Text] An inquiry into the strategic questions of development of social, economic, scientific and technological coordination of the local metallurgical industry must begin from an analysis of the basic conditions of economic development in the particular industry and locale.

The local metallurgical industry has been developing step by step in China since the end of the 1950's. At present over 1,000 enterprises are scattered all over the country. In 1981 their major products stood in the following ratio to the overall output of the nation: Steel, 17.7 percent; pig iron, 27.2 percent; steel products, 25 percent; making them an important front army in the metallurgical industry. At the same time a large technical corps has been formed from the technical staffs of local medium- and small-sized iron and steel enterprises and teaching, design and research staffs of local metallurgical systems, the ever developing technological backbone of China's metallurgical industry. After the Third Plenary Session, on the heels of the country's rapid turn toward improved economic conditions, the requirements for steel products for agriculture and steel products for manufactured goods for everyday use rapidly increased, but the state of scientific and technical development in the local metallurgical industry was far from being able to satisfy those requirements. This condition of being unable to meet demand heightened the urgency and necessity of the development of coordination between local economics and the science and technology of local metallurgical industry.

The basic strategy for the development of coordination of local economics and local metallurgical industry science and technology is to regulate and develop that industry's superior scientific and technical structures and superior production structures, completely utilize the area's superior natural resources and social conditions, and in the end attain ideal social and economic benefits.

In practice, the important measures of the above-mentioned goals are put into effect via the several aspects listed below to formulate a long range program for local metallurgical industry science and technology that is appropriate to the area's economic development program.

One, conscientiously analyze and grasp local metallurgical industry's special characteristics in science and technology and the relationship between them and the area's economic development. The main characteristics of the local metallurgical industry are those of local supply and local consumption. This clear cut special characteristic of local nature makes for a complex relationship of interdependence, mutual promotion and interaction with the development of the area's economy. Thus general equilibrium and overall arrangements for the problems concerned are required.

Second, involve agriculture, the consumer good industry, energy, transportation and communication, and other strategic focal points of the developing national economy in making a comprehensive analysis of and projection for the local economic market conditions based on all the information and data and the local economic structure and production structure, in order to work out a reliable basis for the long-term program.

Third, establish rational scientific and technical structures with a definite scientific and technical direction. Generally speaking, scientific and technical direction is given embodiment by passing through regular scientific and technical structures. But scientific and technical structures usually include mainstream structures and cross-current structures. The mainstream structures of local metallurgical industry's science and technology should take as their guiding principle science and technology serving production, with agriculture, consumer goods industry, energy, and transportation and communication as the main targets for their services; to expand the development of new materials, new techniques and new equipment in practical research and developmental research. The cross-current structure should concentrate on research in the categories of production, livelihood and welfare. Concurrently, the necessary and the possible must be the basis for the formation of a rational technical structure.

Fourth, with the object of meeting the needs of the development of the local area, develop the utilization of the local area's manpower and material resources, to establish and foster a superior production structure unique to itself, which will strengthen scientific and technical research on each link in the production chain from exploration to mining, ore-dressing, smelting, processing, and all the way to application of the product, to energetically develop steel strip, thin and medium plate steel pipe, etc., the urgently needed products for agriculture, consumer industry, energy, and transportation and communication that are in short supply.

Fifth, regulate the production structure, with all that implies, by on the one hand instituting a resolute elimination of factories, workshops and workshop sections that are technically backward, produce poor quality and have high consumption; and on the other hand institute technical reforms in enterprises with relatively good conditions, one group at a time. We must give full play to the latent power of the facilities already in existence.

12663
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STRATEGIC READJUSTMENT OF SHANGHAI'S INDUSTRY DISCUSSED

Shanghai CAIJING YANJIU [STUDY OF FINANCE AND ECONOMICS] in Chinese No 3, 25 Jun 84 pp 1-5

[Article by Luo Hoxiang [5012 7729 5046] and Zhu Xiangxian [4281 0288 6343]: "Meet the Challenge, Realize the Strategic Readjustment of Shanghai's Industry"]

[Text] Confronted with the severe challenge of the new technological revolution in the world today, Shanghai ought to and is completely qualified to seize this opportunity to use the new scientific achievements in the world to realize the strategic readjustment of its industry and play a pioneering role in modernization.

I

Shanghai is one of the earliest developed areas in China's modern industry and science and technology. Since liberation, its industry has undergone major readjustment and reorganization on four occasions and has now become an important base in China's socialist modernizations program.

During the 1st Five-Year Plan its heavy industry was strengthened, thereby changing the semi-colonial and unbalanced industrial structure. The ratio between light and heavy industrial output value changed from 86.4:13.6 to 64:36; the proportion of agricultural products as industrial raw materials dropped from 93.4 to 80.3 percent.

From 1958 to 1960 Shanghai also reduced a portion of its light textile industry which was overly centralized in the past and particularly built a number of trades and professions in metallurgy, electric power, machinery and chemical industry.

From 1961 to 1965 it also focused on developing six new flourishing industries in high ploymer synthetic materials, new types of materials, precision machine tools, precision instruments and meters, electronics, and silicate, and stressed 18 new techniques.

Since the 3d Plenary Session of the 11th Party Central Committee, at the same time that Shanghai was building Baogang and readjusting the direction of heavy industrial services in accordance to the guiding principle of "readjusting, restructuring, consolidating and improving," it also vigorously hastened the development of light industry.

After more than 30 years of efforts, Shanghai's industrial structure is gradually rationalized, the imbalance in the proportion of raw materials in its processing industry, heavy industry and light industry has been reversed and it has become a comprehensive industrial base with relatively complete categories and good cooperative complementary facilities, and a basis has been laid for its technological and management levels. Moreover, as a port city, Shanghai has favorable conditions and a good basis for domestic and foreign economic relations and technical interchange. However, in terms of the demands of the four modernizations and the state on Shanghai and from the standpoint of the current new technological revolution in the world and of China's fraternal regions surpassing Shanghai, Shanghai's industry is confronted with an unprecedented and severe challenge. It centrally reflects that the gap between Shanghai and advanced technology abroad is widening and that the gap between Shanghai and fraternal areas is narrowing. It reflects that in its industrial makeup, electronics and other newly developed industry constitute merely 4.4 percent while traditional industry constitutes more than 90 percent. According to estimates of relevant departments, labor-intensive industry constitutes 49 percent, capital-intensive industry 34 percent and technology-intensive industry merely 17 percent of traditional industries. Moreover, all trades and professions notably self-multiply and advance simultaneously while navigation industry and mainstay products have not been sufficiently stressed. In terms of industrial products, most of them are resource-intensive and their reliance on resources and energy is strong while Shanghai happens to be short of resources and energy. Moreover, the variety and quality of most of the products are at the international level of the 1950's and 1960's. Production methods are gradually becoming outmoded, increase in productivity is slow and the pace of development has slowed. From 1981 to 1983 the average increase of the annual total national industrial output value was 7.4 percent; Shanghai's was merely 4.9 percent. Shanghai's growth rate was relatively low compared to Beijing, Tianjin, Jiangsu and Zhejiang. Its industrial output value has decreased from one-eight to one-ninth of the national total. Economic results have not been ideal and the growth rate of revenue is even slower. However, the new technological revolution in the world is symbolized by knowledge in the economization of resources and the rise of technology-intensive industry. The solution and hope for Shanghai's industry therefore lie in the realization of strategic readjustment. This is the only way to give play to Shanghai's pioneering role. If so, what is the direction of strategic readjustment of Shanghai's industry? We believe that when considering strategic readjustment we must realistically evaluate the state of Shanghai's industry and make scientific and technological progress and good economic results as the course of struggle. In other words, we must place Shanghai in the greater national system, proceed from its current conditions, work hard to transform traditional industry with new technology and increase the pace in developing the rising industry. During readjustment we cannot ignore reality and open up shops arbitrarily, nor can we hesitate to move forward when we do not see favorable conditions.

II

Readjustment of Shanghai's industrial structure involves numerous factors, the key ones being trades and product composition. We must therefore first study the more than 100 types of trades in Shanghai and the several tens of thousands of types of products that they produce. We must never regard existing traditional industry as the "setting sun" and underestimate it. On the contrary, it will still undergo major development. The problem is to use newly developed industry to drive traditional industry to take on a new appearance. At the same time, what should be developed must be developed, what should be reduced or eliminated must be reduced or eliminated and what should be moved to the central and western regions must be moved. In terms of major industries, we believe that they should be reajusted as follows:

1. Raw and semifinished materials industry: For more than 30 years Shanghai's production of raw and processed materials has greatly developed. Nevertheless it is short of raw materials and energy so that it cannot mass produce non-renewable energy products that consume large amounts of primary resources. The focus should be on precision processing.

Metallurgical industry: When the second phase of the Baogang project begins production, together with the current iron and steel production capacity, it will reach above 10 million metric tons and half of the steel products must be shipped out or exported. The present gap between the variety and quality of Shanghai's steel products and those abroad is wide, product composition is not entirely rational, the development of a new variety and new materials is slow and the demand for slabs, strips, materials, and supplies urgently needed by light industry cannot be met. For a long time production capacity has not been formed for some key metallic materials. In the future it is not suitable for Shanghai's iron and steel industry to expand in volume but attention should be given to energy economization and in the depth of processing it should develop product variety, improve quality, satisfy the needs of the state and expand export. It should step up the development of various high precision alloy materials, electron tube materials and various high-quality slab and strip tubes, alloy steel and other new variety and new materials in order to suit the needs of electronics, electromechanics, petrochemical, shipbuilding, electric power, aviation and other industrial departments.

Chemical industry: We must gradually change the state of reliance on grain, oil, coal and minerals as raw materials, improve the depth of processing and develop fine chemical industrial products. For fine chemical industrial products which are in short supply and which rely on imports such as high-grade sodium carbonate, high-grade dyestuff, high-grade paint, high-purity reagents, engineering plastics, meridian tires and special synthetic rubber, we must strive to achieve self-sufficiency within a short time. We must also intensify comprehensive utilization of resources in order to improve the depth of processing, economize on resources and deal with some of the pollution by the three wastes. As for the production of chemical industrial raw materials in general, we must vigorously adopt new techniques and technology and primarily keep in mind complementary facilities for Shanghai's own use. Production

of certain unmarketable chemical industrial products in general must be reduced. In the future we must also improve the depth of processing of petrochemicals and develop new varieties.

Building materials industry: In recent years the building materials industry has been regarded as an important trade in developing the economy, and the volume required for the construction programs of various departments has been enormous. But Shanghai is short of resources, and in the future it must use the principle of economic rationalism, fully utilize Shanghai's own resources, develop new varieties and new technology, transform outmoded techniques, and achieve economization of energy and materials, high efficiency and quality. We must speed up the development of lightweight mineral wool materials, lightweight wall materials, high-grade building materials and other varieties.

2. Daily consumer goods industry: Since the 3d Plenary Session of the 11th Party Central Committee, the purchasing power of China's citizens has averaged an annual increase of 10 percent. This tendency is still developing so that prospects are very good for the development of consumer goods, particularly high- and medium-grade durable consumer goods. At present the key problem in Shanghai's development of consumer goods is that variety and quality cannot keep pace with consumption demand, and they lack competitiveness. According to analyses by departments concerned, over-supplied and unmarketable industrial consumer goods are about 20 percent at present. The proportion of output value of new products in the total industrial output value is extremely small, the ability of industrial enterprises to adjust to change is poor, changeability of production lines is weak, does not suit the changes in market demands. The future way out is to exert efforts in the variety, quality, portability, multi-functions, new types and services based on domestic and foreign market needs, to strive to develop new products and to pioneer new realms of application.

Food industry: At present the ratio of the output value in the food industry to agricultural output in developed countries is 2:1. Among those with high ratios, the Federal Republic of Germany for instance is as high as 2.3:1 while China is merely 0.3:1. Obviously, China's food-processing industry has great prospects for development. In the future, Shanghai can primarily develop convenient foods, nutritious foods and children's foods in order to suit the different needs of the old, the middle-aged, and young children. At the same time it can develop various food additives, produce high-calorie foods and improve the degree of processing.

Textile industry: The national standard of clothing is still low; the average woollen knitwear per capita is less than 20 grams. Along with the rise in the living standards of the people, the prospects for developing the textile industry are unlimited. The key is whether new realms of application can be pioneered in the variety and quality of textile goods. Shanghai must first change the structure of raw materials in its textile industry, shift from primary use of agricultural and sideline products to industrial raw materials, make greater use of chemical fibers and develop new varieties such as special-shaped, modified, combustion-resistant chemical fibers. The variety of chemical fiber fabrics must be good and cheap and marketable. Secondly, there

must be a wide variety in the composition of fabrics, with blending and interweaving; sizes must suit export and clothing needs; the sheeting ratio must be increased; semifinished knit materials and clothing must be greatly increased; the quality of dyeing and warping of all fabrics must be improved in order to provide a basis for the development of the clothing industry. Moreover, the present proportions of high-grade woollen, hemp and silk fabrics are low and attention must be given to their development in order to obtain greater economic results. Shanghai has always been a textile industrial base. It must maintain its definite advantages, appropriately increase its production capacity but should stress the development of high-grade products. At present the rate of ready-made clothing in the whole country is only a little higher than 10 percent of cloth materials and does not suit market needs. The problem is to have good materials for complementary work. We must constantly transform clothing designs and increase clothing specifications, improve processing techniques and gradually attract consumers from buying semifinished materials to ready-made clothes. Furthermore, textile goods must be extended in the direction of decorative and industrial use.

Other industries whose products are primarily for consumption: Among these are durable consumption, one-time consumption, sports, luxury and decorative types. We should stress trades which are technology-intensive or which have a high level of technology, for instance, color television, tape recorders, video cassette recorders, electronic multi-funcational cameras, international state of the art duplicators, industrial sewing machines as well as energy-saving and high-efficiency refrigerators, washing machines and color films and photographic paper. We must also constantly develop new variety, develop high- and medium-grade plastic goods, detergent, essence and perfume and paper for technical use, and we must consider developing new product variety by energy-economization for glass products and enamel products which are high in energy consumption. For medicine and chemical reagents as special products for one-time consumption, we should mainly develop products which have difficult production techniques, curative effects and few side effects.

3. Engineering, instruments and meters manufacturing industries: This largely supplies equipment to other trades. The ratio between agricultural and light and textile machinery is currently low and the product composition is not rational. Shanghai should fully utilize its existing base and speed up the development of large, complete, high-grade and precision products.

For machinery, instrument and meter products we must appropriately increase the proportion of light and textile machinery and produce more machinery that will benefit technological transformation of light and textile industry. As for the equipment machinery industry, we should stress the development of automobiles, shipbuilding, power-generation equipment and other comprehensive machinery, instruments and meters. The automobile industry should develop high-speed and energy-saving buses and heavy, high-tonnage mining trucks. The shipbuilding industry must develop ships heavier than 10,000 metric tons which are low in energy consumption, have good performance, suit low water displacement and are for special use. The focus in power-generating equipment is to increase the manufacturing of 300,000-kilowatt generating units which have already been in production. Their technical quality must be perfected and we should develop 600,000-kilowatt or more powerful generating units to

contribute to China's electric power construction. We must strive to change the outdated variety and quality of instruments and meters within a short time. The production of ordinary universal machines, metallurgical and mining machinery as well as electrical equipment and standard parts should be controlled, reduced or shifted elsewhere. Along with the gradual increase in imported equipment, particular attention must be given to taking the course of "import-assimilation-innovation" and swiftly catching up with advanced levels in the world.

The trades and professions mentioned above essentially belong to the category of traditional industry, but they have products that can be developed. Such is the basis of Shanghai's industry. Any attempt to depart from this basis to rebuild new trades would be unrealistic and undesirable. The problem is to pursue new combinations and arm them with new technology. For instance, the engineering industry should be combined with the electronics industry to realize electronic mechanization. Other trades should also make extensive use of micro-electronic technology to enable traditional industry to make a quick leap onto a modern and technical basis. We must use every means to pioneer new realms of application. Different trades can infiltrate each other and products should be developed in depth. The whole municipality must stress the several major industries and all trades and professions must stress several unique mainstay products. Moreover, we must shift some of the high-energy and high-material consuming traditional industrial products to the Shanghai economic zone as well as the central and western regions in a planned way, take the initiative of giving up a part of the market and support it with technology and management in order to concentrate efforts to develop new products and new materials, and stress a number of mainstay products so that the industrial structure will shift from the labor-intensive and capital-intensive types to knowledge and technology-intensive types.

III

The new and rising industries, or industries that can develop, are the key to realizing the strategic readjustment of Shanghai's industry. Industries which represent the developing trend of the new technological revolution in the world primarily include: microelectronics, biological engineering, optical fiber communications, offshore petroleum exploitation, and new materials and robots. Although some of Shanghai's new and rising industries did not make a late start, their progress has been slow and at present some are still in the experimental or small-scale production stage, which creates large gaps with advanced world standards. We must recognize these gaps but must also recognize the positive side of Shanghai in science and technology, economic management and qualified people, which make it possible to master advanced world standards, to skip certain development stages undergone by developed countries, and to develop a number of rising industries.

1. Micro-electronics industry: Communications technology, control technology and systems technology formed around electronic computers and large-scale integrated circuits are the most significant scientific and technological achievements in the contemporary age. It mutually infiltrates and combines with traditional industry. Shanghai has expertly utilized the first-generation vacuum tube computer since 1964, but to date it has merely entered the

second and third generations, and fourth generation super large-scale integrated circuits are still being developed while developed countries in the world have already begun developing the fifth generation. We must therefore stress development, perfect complementary facilities, form serialized products of microcomputers, integrated circuits, basic materials and discrete components, make an early breakthrough in tackling key problems in large-scale integrated circuits, vigorously popularize their application and gradually progress from computer testing and monitoring and management to home use by the end of this century.

2. Biological engineering, which includes genetic engineering, cell engineering, enzyme engineering and fermentation engineering: Shanghai has made definite progress in basic research, application and development in biological engineering, but the extent of industrialized production is small. In the future we must on the one hand stress technical advance in fermentation engineering and enzyme engineering, develop high-yield and energy-saving types of bacteria and transform fermentation technology of lysine, citric acid, alcohol and monosodium glutamate which are already in production as well as the manufacturing of antibiotics and increase the rate of return. On the other hand, we must stress the development of new varieties such as synthetic insulin, type-B hepatitis vaccine, pig hoof and mouth disease, vaccine and cephalosporin, tackling key scientific research problems in durable and high-temperature amylase, and fermenting high-unit diatase and strengthen the technological reserve.

3. Laser technology: This is necessary for the application of information storage, research and analysis of micro-movement of matter and highly advanced technology. In the future, their application should stress the development of laser processing, laser medicine and laser testing, constantly improve the quality of products. We must also strengthen the study of optical disk storage technology and strive to form a system of laser industry by the 1990's.

4. Optical fiber communications: Shanghai merely has a history of 10 years in developing optical fibers. In 1979 it was applied on a small scale in the municipal telephone communications, but today production output and quality remain low. Since optical fibers and optical cables have the advantages of resistance against interference, material economization and preservation of confidentiality, its immediate development is urgent. To suit the needs of communications we must promptly attend to the technological equipment of industrialized production of optical fibers and optical cables and resolve the problem of the quality of quartz material performance and the laser components.

5. Offshore petroleum exploitation: Shanghai has a strong and comprehensive scientific and technological capability and its complementary equipment and production are relatively concentrated. It should therefore actively undertake the manufacturing tasks of offshore drilling equipment assigned by the state, tackle key problems in the construction technology for installing platforms and equipment and strive to spend 7 or 8 years to master the exploitation technology for depths of 100 meters.

6. New structural and new function materials: The focus is to develop new materials related to information technology and energy technology such as carbon fiber and other structural component materials, new polymer materials, functional polymer materials, sensitive ceramic, high-temperature ceramic, fast-ionic conductor materials and engineering plastics.

7. Robots: Shanghai has very few mechanical arms and it must import advanced technology, do a good job in exemplary application and trial manufacturing of prototypes, and improve them gradually.

If readjustment of the industrial structures is carried out according to definite strategic directions and planned objectives, corresponding coordination is also necessary in the composition of capital, equipment and labor force. The level of technology and equipment of Shanghai's industry will constantly increase along with the development of the new and rising industries. Dare we imagine the transformation of all pre-Liberation, outdated technical equipment by the end of this century? As for the composition of the labor force, there is not only a question of increase or decrease in the total labor force but also the more important question of its quality. Based on the demands of readjusting the industrial structure, it is inevitable that technology-intensive industry will increase and labor-intensive industry will decrease. Now demands will also be made on the composition of the labor force and a large labor force that can master high technical skills will be needed. As a result, the task of training staff and workers and technicians is of top priority.

IV

There are various limiting factors in realizing the strategic readjustment of Shanghai's industry. We believe that reform and readjustment are necessary in the following seven areas, otherwise the task of readjustment will be difficult.

1. We must further implement the strategic guiding principle of "economic construction must rely on science and technology, science and technology must be geared to the needs of economic construction." Science and technology must firmly center around the key topics that need to be resolved in industrial readjustment, and coordinated efforts to tackle key scientific and technical problems must be organized in order to turn science and technology into productive forces. Institutions of higher learning and scientific research and production units must build stable and cooperative relations and carry out joint development and application.

2. We must strengthen planned guidance by the state. The readjustment program of Shanghai's industry is an important component part of the long-term program for economic and social development of the whole country. The state should strengthen its planned guidance, combine higher and lower levels, jointly determine the distribution of Shanghai's industry and the direction of industrial readjustment in order to avoid arbitrariness and to realize healthy readjustment of Shanghai's industry. The state should guide and support the directions of capital, equipment and labor force. The readjustment of Shanghai's industry should also combine with overall planning in urbanization.

3. We must formulate and readjust the economic policy to support new and rising industries and develop new technology and new products. This includes providing low-interest loans for newly developed technical projects, relaxing repayment terms and giving preferential arrangement. New products should be given policy subsidies. Taxes should be exempted for the trial production and small-scale production of newly developed industrial products. The depreciation rate of newly developed industries should be increased so that they will have the ability to be self-reliant. We should reform the price system and truly achieve pricing on the basis of quality.

4. We must be flexible in importing technology and utilizing foreign capital. We must conscientiously import technology for self-use, and "import-assimilate-innovate" is the course we must take. The use of foreign capital at present is mostly in the form of compensatory products and processing of imported materials. Joint investment is not extensive and sole investment is yet to be carried out. We should have the means to attract foreign capital, pursue a flexible policy, restructure the system including a tax exemption policy effective for a certain period of time for joint ventures in newly developed industries and encourage foreign firms to operate industries in Shanghai with joint or sole investment.

5. We must actively raise funds. For this we must have a corresponding investment protection policy. Apart from allocation of funds by the state, we can raise funds through multiple channels including the use of foreign capital, collective fund-raising and individual investment. We can think about operating joint stock companies and encourage enterprises or departments in charge to implement investment from across trades and systems.

For the direction of investment we must guide the newly developed industry and other key industry and key products and guard against equal division of funds, comprehensive development and engaging in everything. As a matter of policy we should give preferential treatment to industries and products that need to be developed and help them absorb sufficient funds, while we must increase the tax rate and reduce loans for industries and products that must be restricted and urge them to shift their funds.

6. We must speed up intellectual development. Pioneering the newly developed industries and transforming traditional industries require people to do the work but at present the intellectual structure is hardly suitable. We must therefore use every means to train qualified people at various levels and through different forms. We must also be willing to spend money, strive for a major improvement in the cultural and technical skills of staff and workers and technicians within a short period of time. Correspondingly, we must reform education, truly gear it to modernization, the world, and the future and train a large number of qualified people who can independently analyze and solve actual problems. We must also be good at attracting talent from abroad and carry out a proper flow of qualified people.

7. We must restructure the system of economic management step by step. The key is to mobilize the enthusiasm of departments, enterprises and individuals. In the course of restructuring we must liberate our minds, break outmoded

conventions and bad habits and smash the system of the "iron rice bowl" and "the big pot." Plant directors, managers and leaders of departments in charge must be able to work at higher and lower levels while staff and workers must be good at many jobs. Those who contribute should be rewarded and those who cause losses due to poor administration and management should be punished. At the same time, we must give flexibility to managers and plant directors of enterprises and encourage them to engage in the four modernizations in the "big basket" of the state plan. We must give full play to the role of revenue, prices, loans, bonuses, subsidies and other economic levers. We must strive to improve the quality of enterprises and scientific research organs, implement a strict responsibility system, combine responsibility, authority and benefits, distinguish the responsibilities of administration and enterprises and implement the responsibility system of plant directors. The relevant departments in charge at the higher levels must also be restructured. A responsibility system of policy decisions and a responsibility system of planning should be established for them and they must undertake a certain economic responsibility. In the course of restructuring we must vigorously promote the development of collective industry and change the currently low proportion of collective industry.

We must also give full play to the role of administration of the trades. We must smash the system of ownership of regions and the system of ownership by departments, proceed from the trades, organize, manage and plan according to the trades. Enterprises must also be readjusted and reorganized according to the trades so that they can become relatively independent economic entities and free themselves from the restraints of central and local authorities in order to suit the new situation of industrial readjustment.

It can be predicted that only if Shanghai boldly carries out reform and actively and cautiously accomplishes the strategic readjustment of its industry, a completely new situation will be initiated for Shanghai's industry, and it will play a pioneering role in the new technological revolution and the four modernizations program.

9586
CSO: 4006/770

PROSPECTS, CHALLENGES FOR MACHINE-BUILDING INDUSTRY ANALYZED

Beijing RENMIN RIBAO in Chinese 22 Jul 84 p 5

[Article by Yi Hui [1707 6540]: "The New Technical Revolution and China's Machine-Building Industry"]

[Text] New Tasks Confronting the Machine-Building Industry

The machine-building industry serves as the outfitting department for the national economy and undertakes the task of providing technical equipment for each economic sector. This is true with respect to traditional industry as well as to the new technological revolution.

The new technological revolution affects and conditions the developmental direction of the machine-building industry, continuously presenting new research problems for the latter and creating new social demand. This revolution, therefore, inevitably engenders a revolution in technical equipment. Under these conditions, the tasks of the machine-building industry greatly increase. First, the industry must provide good-quality and advanced technical equipment for traditional industry, which China is now developing and which includes agriculture, heavy industry, light industry and other sectors. Meanwhile, measures must also be provided to produce and apply such new technology as microelectronics, new materials, new energy sources, bioengineering and the like. The traditional machine-building industry was established and developed in order to meet the needs of traditional industry. But to escape traditional habits and to serve new technology implies a leap, and the machine-building industry must make tremendous effort in order to accomplish this leap.

The demands of new technology on the machine-building industry have many distinct features. First, the development and application of new technology is growing increasingly fast, replacement cycles are becoming shorter, and thus the industry must further accelerate the replacement rate for the means of producing new technology and acquire much greater adaptability. Second, new technology will be widely applied in every productive sector and will permeate all areas of society. This tendency will require diverse product variety, and thus the machine-building industry must undertake organizational readjustment and reform of the system of management so as to provide new equipment to produce a wide variety of new technological products. Third, it is especially

important that these products be efficient, stable, safe and reliable. Thus the equipment producing these goods must be high-quality and precision instruments, and the industry consequently must make changes in its technological structure. Fourth, since the crux of the new technological revolution consists of a "revolution in know-how," knowledge has been accorded an especially important position, and scientific and technical [S & T] personnel will become the representatives of the new productive forces. Thus the machine-building industry must place special emphasis on intellectual investment and rapidly train S & T personnel who meet the needs of the new technological revolution.

In short, the new technological revolution requires an enhancement of the quality of the machine-building industry. To achieve this task, we must implement technological transformation in the industry.

Correctly Handle the Relationship Between Traditional and New Technology

The traditional machine-building industry provides a foundation for the widespread application of new technology, and without the development of this industry, new technology would be but a castle made of sand. At present and in the future, we must continue to focus on strengthening and improving the existing foundation of the machine-building industry, implementing technological transformation, further improving quality, increasing product variety, raising standards and improving economic results.

At the same time, no Great Wall separates the traditional machine-building industry and new technology. There is no such thing as a purely traditional industry or purely new technology. In fact, microelectronics, new materials, new sources of energy and the like all were early applied and rapidly developed in the traditional machine-building industry. The issue now is that we must more consciously and directly apply that technology to and transform the industry. Naturally, some forms of new technology are less fettered or completely unfettered by the traditional machine-building industry and thus can be established as an independent field. Prudent and early preparations for the establishment of a new machine-building industry also form an important task of the industry.

By properly handling the relationship between new technology and the traditional machine-building industry, we shall be able to proceed from the industry's actual foundation, to complete in a timely fashion the technological transformation of the industry and to close the gap between the industry and advanced levels in the world.

1. We must vigorously apply new technology in product design and new product development in the industry. First, we must make "integration of mechanical and electrical engineering" our watchword in new-product design and development and apply such new technology as microprocessors, digital display and grating to machine products. Second, we must vigorously apply new materials such as carbon fiber, engineering plastics, precision ceramics and optical fibers. By employing new technology, we can reduce the weight of machine products, save energy and, across the board, improve the technical quality and level of automation of these products.

2. We must directly apply new technology to transform the equipment of existing machine-building enterprises. Digital indicators and numerical control devices should be gradually added to equipment that can accept them. In the future, all processing, measurement and other technical equipment must be upgraded when it loses precision due to wear and tear. In general, such equipment should not be replaced with outdated and inferior technology but, in accordance with actual conditions and wherever possible, with better equipment. We should make special efforts gradually to expand use of numerical-control machines, processing centers and the like. And mechanical arms and robots should be employed to replace humans at work locations requiring excessive labor intensity, having harsh conditions or suffering from severe pollution.

3. We must expand usage of computers. First, computers should gradually be employed to conduct simulated tests so as to accelerate new-product design and development, to enable S & T personnel to get away from menial labor and to liberate mental labor to various extents. Second, industrial and enterprise management should employ computers to collect, process, store and transmit information; to make predictions and decisions rapidly and accurately; and gradually and fundamentally to transform current, handicraft-like managerial practices. We must establish sound systems of management so as to provide computers with complete and accurate data and statistics.

4. We must make the understanding, familiarity, mastery and employment of new technology a major component of our effort to improve the quality of workers and staff. We should start establishing special courses in new technology for current employees and plan in advanced, reform education and make new technology, especially computer technology, a required curriculum at institutions of higher learning.

Properly Handle the Relationship Between New Technology and Suitable Advanced Technology

The technological transformation of China's machine-building industry must be rooted primarily in self-relaince, a policy on which cannot waver. Nevertheless, China lags even farther behind advanced levels in the world in the area of new technology than she does in traditional industry, and thus vigorous introduction of technology is even more necessary. The machine building-industry, therefore, must increase the ratio of new technology relative to total imports, expand the size and scope of imports and make appropriate adjustments in managerial methods and organizational forms relating to imported technology.

Placing emphasis on the introduction of the newest technology does not imply repudiation of the guiding ideology concerning imports of suitable advanced technology. Quite the contrary, we must take advantage of opportunities and vigorously introduce advanced technology that is suited to conditions in China. "Opportunities" has two meanings. First, because enterprises in industrially advanced countries gradually shift into new production, some of their enterprises' original technology becomes out of date as far as the enterprises are concerned and is no longer worth monopolizing. Thus their enterprises are

willing to transfer such technology, much of which constitutes [illegible] and suitable, advanced technology. If we do our work properly, we can obtain even more foreign technology through this type of switchover. Indeed, [illegible] much technology is considered outmoded in developed countries, so the price therefore naturally is now much cheaper than it was when [illegible] remained secret. Thus we can obtain more technology at less cost.

Even though the technological revolution has progressed rapidly, it still remains incomplete. Moreover, that progress has been uneven throughout the world, with some countries experiencing rapid development and new [illegible], some nations achieving higher levels and some lower. That is to say, traditional industry will retain an important position for a considerable length of time, many countries will still depend on the industry to develop economic prosperity, competition among traditional products in the international market will remain very intense for quite some time and thus new prospects for the development of China's machine and electrical exports are still [illegible]. The key is that our products must be marketable, high quality and cheap.

We must recognize that new technology is advancing more rapidly in [illegible] developed nations than in developing ones and thus that traditional industry inevitably will gradually shift toward developing nations. Developed nations will withdraw some of their goods from the international market and begin importing some of the goods that were previously supplied domestically. This shift offers an opportunity for China's machine-building industry to increase exports of mechanical and electrical goods. We should study these trends, adjust our export strategy for these goods and strive further to increase exports thereof.

12431
CSO: 4013/187

HUBEI'S METALLURGICAL, TEXTILE, MACHINE-BUILDING INDUSTRIES

Wuhan HUBEI RIBAO in Chinese 22 Aug 84 p 1

[Text] A Major Metallurgical Center for the Nation

In 1983 the total steel output in the province was 4,086,000 tons, 10 percent of the national production total. Today the monthly steel production from Hubei's metallurgical industries just about equals the total produced in 36 years by the Hanyeping Company before Liberation.

Since the founding of the New China, our nation has invested in the establishment of the Wuhan Steel Company, the Daye Steel Mill, the Daye Nonferrous Metals Company and other key large scale enterprises. After the 3d Plenary Session of the 11th party Central Committee, changes were made in the product structuring of these large scale enterprises, and economic benefits clearly increased. The seven 1 meter rolling mills at Wuhan Steel have provided over 9,890 tons of hot and cold rolled sheet, galvanized sheet and silicon steel plate in the period from the beginning of production in late 1978 to the end of July this year. In the last 4 years, Wuhan Steel's profits have risen by 100 million yuan per year. The Daye Steel Mill is one of the nation's 15 specialty steel mills. Since 1980 the mill has developed the capacity to make several hundred varieties of specialty steel, in over 1,000 specifications.

In the 5 years from 1979 to 1983 inclusive there were new increase in the provincial output of important products such as pig iron, coking coal, gold, matte copper, and electrolitically reduced copper and lead. In that period, the value of the production of the metallurgical industry showed a net increase of 1.47 billion yuan; a net increase in profits of 360 million yuan; and a net increase of 120 million yuan in taxes paid.

Vigorous Developments in Hubei's Textile Industry

Hubei's textile industry developed rapidly following Liberation. On the eve of Liberation, there was only 0.6 meters of plain cloth per capita in the province; in 1978 that had increased to 14.6 meters; by the end of 1983 it was 24.2 meters. New textile products in gorgeous colors and novel varieties are "flooding" the homes of the masses.

According to statistics from the Provincial Federated Textile Companies, the following increases occurred between 1949 and 1984: the number of textile firms rose from 5 to 1,000 plus; the number of spindles rose from about 140,000 to 1,840,000; cotton cloth production rose from 1.8 million meters to 1.2 billion meters. After the 3d Plenary Session of the 11th party Central Committee the provincial textile industry began to develop even faster, and economic benefits increased. In the 5 years after 1979 the provincial textile industry amassed 4.06 billion yuan for the state, about equal to the total amassed in the previous 29 years. Now Hubei's textile industry occupies third place nationally in the industry for fixed assets, total value of production, and accumulation rate. Production capacity for knit goods, copies, prints and silks has risen greatly, making the province one of the nation's big textile centers.

After the 3d Plenary Session of the 11th party Central Committee the province's textile industry speeded up the development of new products. It began diversifying the mix of raw materials used, making specialty prints, turning knit wear production in the direction of outerwear, and dressing up the finished product. Last year synthetic fiber products amounted to over 30 percent of the total provincial production, and there were rapid developments in all types of synthetic blends with the appearance of "linen-wool", "cotton0linen", "cotton-wool", "silk-wool", and, "cotton-silk". In the last 3 years over 430 types have been introduced into the province; 12 products have won the National Quality Award and nearly 400 varieties have been selected as Provincial and Ministry Excellence Award.

Hubei's Machine Building Industry Makes All-round Technical Advances

Today, Hubei's machine building industry is able to produce 7,500 varieties of machine products in 18 categories, with automobiles, machine tools, agricultural implements and electrical machinery and hallmakrs of the industry. The Number Two Automobile Factory, the Wuhan Heavy Machine Tool Factory, the Wuhan Boiler Works are some of our nation's key large and medium scale enterprises. According to 35 year statistics provided by the provincial Department of Machine Building Industry, Hubei has contributed: 260,000 motor vehicles; 93,000 machine tools of all sorts; diesel engines totaling 8 million horse power; and a great deal of mining equipment, electrical generating equipment and industrial boilers. In 1983 alone, Hubei supplied the mechanical equipment needs of over 50 strategic national construction projects, supplying over 6,900 machines.

In recent years the machine building industry has undergone the introduction of imported advanced technology and has developed new products to ensure that economic benefits are clearly increased. Since 1980, 770 types of machinery for household use have been studied and developed, with 114 products winning the National Quality Award or Ministry and Provincial Excellence Awards. In 1983 the provincial machine building industry's products were worth 3.69 billion yuan. Compared with 1979 this is an increase of 2.38-fold; compared with 1949 it is an increase of 200-fold.

12663
CSO: 4013/239

AUTO PRODUCTION FOR 1984 MAY TOP 300,000

HK120900 Beijing ZHONGGUO XINWEN SHE in Chinese 0647 GMT 11 Nov 84

[Text] Beijing, 11 Nov (ZHONGGUO XINWEN SHE)--The steadily growing demand of various industries, professions, and, in particular, the peasants, for cars has radically changed China's auto industry, which suffered from an extremely poor sales record 2 years ago. The country's total auto production this year may exceed 300,000 (the planned production was 240,000) for the first time. This is revealed by an article in issue No 46 of the weekly LIAOWANG which will be published tomorrow.

The next 30 years, says the article, will be a golden age for China's auto industry. It is estimated, based on historical data of the various provinces and cities, that by the year 2000, the number of China's cars will have sharply increased to about 13 million from the present figure of 2 million.

The article reveals that not long ago, Premier Zhao Ziyang pointed out that the tremendous development of the auto industry is an inevitable trend and that it is very likely to become an important component of China's future economic growth. In early August this year, he personally chaired a meeting to discuss the trends in the development of China's auto industry and suggested that China's auto industry should be developed on a solid basis and at a quick pace. The first specific measure is to organize specialized mass production. The second specific measure is to assemble parts imported to our country from foreign countries. At present, it is necessary to produce more cheap but good vehicles for transportation and agricultural purposes and taxicabs. In view of China's national conditions, deluxe sedans will not be developed in the near future because of the high cost of production.

The article says that China's auto industry will strengthen its cooperation with those of other countries. This year, China imported about 100,000 cars. Before 1990, China will produce, principally with advanced imported technology, five types of vehicles produced by the world in the 1980's, namely, heavy-duty vehicles, light vehicles, minicars, jeeps, and small sedans. On this basis, China will have an annual production capacity of 600,000 vehicles and will put some of them on the international market.

It is reported that China's auto industry will have the large cities as its base and that the key enterprises will carry out regional cooperation in order to build several car companies in the country. For example, in north China, Changchun in Jilin will be the base for the "First Auto Industry Corporation" and in south China, Shiyan in Hubei will be the base for the Second Auto Industry Corporation. They will carry out extensive cooperation with coastal enterprises and third line factories.

CSO: 4006/88

STATISTICS ON NEW ELECTRO-MECHANICAL EQUIPMENT COMPILED

Beijing TONGJI [STATISTICS] in Chinese No 4, 1984, pp 26-27

[Article: "How We Compile Statistics on New Electro-Mechanical Equipment (Products)"]

[Text] We at the Zhengzhou Textile Machinery Plant produce more than 4,600 textile machineries of 80 varieties each year. The plant produces a broad spectrum of products and consumes a large variety of materials. In the electro-mechanical equipment (products) category alone, there are more than 10,000 specifications. The supply of these materials involves the material supply departments in sales, tool, equipment, capital construction and general services units and the education office, the hospital and the workers union. More than 10 supply warehouses were involved and there were 130 accounts and a large work load of bookkeeping. In the previous years there were no special personnel exclusively responsible for material statistics and the various departments passed the buck, reports were often delayed for days. In the last few years, a series of new measures have changed this passive situation and the timeliness and accuracy of reporting have improved greatly. Specifically, we have taken the following actions:

1. Build up the force and intensify the basic work

We first placed professional statistics personnel in important material supply departments such as sales, equipment and capital construction. In other departments specific assignments were made to designate persons responsible for reporting statistical data. Next, we organized the statistics personnel and conducted training and actively participated in the meeting and training sessions held by the Ministry of Textile to exchange experience. At the annual report time of each year the plant Director has organized the responsible staff for meetings and learning sessions. Through these activities, the awareness of statistics on electro-mechanical equipment was improved and the ability for this endeavor was also upgraded. In the meantime, a major effort was devoted to the basic tasks. Most of the basic tasks of electro-mechanical equipment accounting are at the warehouse level, they include the storage of materials and recording and accounting. In the previous years we

had many problems with warehouse management, materials were stored haphazardly and the classifications were unscientific, the same materials were managed by several people, entered in several books and very hard to find. In 1981 we had our sales department and tool department establish new books for the electrical shop and the tool shop based on the catalog classification. The people in the sales department worked around the clock to finish the classification catalog and the warehouse people spent 1 month organizing the shelves in the warehouse and establishing accounts and cards. They organized the classification of 1,300 materials and started 20 account books. Comrades in the tool department also went through cataloging and classification and established 34 books for 5,640 supplies. After several consolidation and checking, these warehouses now look totally different. On this basis, the tool department started the "remaining tool checklist" and the sales department started a "monthly consumption and stock accounting." The ledgers were all in the standard reporting form and formed the basis for the statistics on the electro-mechanical equipment.

2. Combine statistics personnel and business personnel, combine regular reporting with temporary reporting

The production of a good catalog on new electro-mechanical products requires the thorough cooperation of the business personnel in the various departments, especially the equipment department. Our principle is that whoever is in charge of the business will also be responsible for providing data for that business. We require that the workers (planners, purchasing agents, accountants and managers) each provide their own data and the statistics people will be responsible for checking and integrating the data. This scheme not only avoids overburdening the statistics personnel but also improves the quality of the statistics because the workers are most familiar with the data they provide and the verification is easy. For the business staff, they become even more familiar with the materials they manage by going through the reporting and calculation activities.

For certain materials with uniform classification such as bearings and standard tighteners there are existing figures checked by the statistics department on a monthly basis. For such materials we used the existing figures and did not repeat the statistics.

Another category of supplies such as teaching equipments bought by the instruction department, cameras bought by the worker's union and calculators bought by the general services department are all catalog items purchased by funds from various sources only a few times a year. For such items we issued a "independently purchased items questionnaire" to collect the necessary data.

3. Improve procedures and efficiency

(1) Study the government-issued catalogs and compile our own catalog

The entire statistics of the electro-mechanical products is centered on the cataloging of the products. The quality of the statistics depends crucially on the thorough understanding of the catalogs. For this reason, we often gather the statistics personnel, the business staff and the warehouse managers together and study the catalogs. Some business staff are quite familiar with the business operation but are unsure about the classification of certain products. For example, some pumps may be listed under engineering hydraulic components or under mechanical hydraulic components. The electrical component warehouse of the sales department has a large quantity of planet gear speed reducers, stepless governors and electromagnets. The warehouse people proposed conducting statistics of such equipments, but we studied the catalog and found that such items were not on the catalog and therefore did not need statistical accounting. As a result, we re-learn the catalog every time we do a report. To become familiar with the catalog and the real objects, statistical personnel in some units often help the warehouse do inventories. This has enriched their business knowledge and helped them in classifying the items. In order to have a plant-wide data base, we have also compiled a catalog of electro-mechanical products of our plant and listed the commonly used items. This catalog lists the quantity as well as the price. We used it as a worksheet for the final report and issued it to the various units. This has proved to very convenient and has been used successfully for several years.

(2) Simplify the reporting tasks to save time

Since the reporting of statistics is very time consuming and often prevents the supervisors from attending to other duties, we spread out the task by having daily and monthly reports to save the reporting time.

(3) Verify the inventory against the figures

To ensure the accuracy of the data, some departments check the warehouse inventory against the year end book data. This practice has made the statistical figures more reliable.

4. Improve the checking of the statistical figures

To ensure the accuracy of the electro-mechanical product data, the figures are checked three times: in the originating unit, in the supervising unit and finally at the plant level before the figures are submitted. This practice has ensured the timeliness and accuracy of data reporting.

5. Write analysis report for the reference of the leadership

After each report we always call the statistics people, the business staff and the warehouse managers together and do an analysis and comparison. An analysis report is written for the plant leader's reference. For example, we found that the 1982 year end inventory value was 940,000 yuan more than the 1981 figure and the material used for production maintenance was 430,000 yuan less. What were the causes for such changes? Analysis showed that the greater machine parts inventory was due to a change in the production assignment and the increase of product stock was because many of the products were not shipped out in time. This analysis provided reliable basis for the plant leader to take appropriate actions.

9698
CSO: 4013/192

POSITION, ROLE OF ELECTRONIC TECHNOLOGY DISCUSSED

Tianjin KEXUEXUE YU KEXUE JISHU GUANLI [STRATEGY AND MANAGEMENT OF SCIENCE AND TECHNOLOGY] in Chinese No 5, 1984 pp 20-21

[Article by Guo Rongzhen [6753 2837 3791]: "The Status and Role of Electronic Technology in Realizing the Strategic Goal"]

[Text] The electronic science and technology was developed after World War II. Because electronic products have such advantages as small volume, high performance, low power consumption, reliability and low production cost, it has been progressing in the short 30 years at a speed faster than other industries and has become one of the fastest developing technical fields in the 20th century. The key to China's four modernizations is the modernization of science and technology. The development of the electronic technology and the wide application of electronic components in production, research and management are important indications of scientific and technological advance. Leadership comrades of the party Central Committee have pointed out that the electronic industry is a technological branch of the four modernizations and electronics is a measure of the degree of modernization. Without the electronics industry, modernization cannot be realized.

A prominent feature of the electronic technology is its general nature in application. It can "hybridize" with the conventional technologies and form advantageous new technologies. Electronic is not only widely used in mechanical engineering, chemical engineering, power production, coal, metallurgy and transportation, it is also generally applied in agriculture, forestry, livestock breeding and fishery. We should reduce the energy consumption in the national economy and improve the economic efficiency by developing the electronics industry. It is clear that electronic technology has an important position and role in the national economic construction.

China began developing electronic computers in 1958. In the early 1970's, after Premier Zhou advocated a broadened application of computers, China's computer research has moved from the laboratory and numerical applications to the society and nonnumerical applications.

To promote and develop computer applications, China imported many advanced foreign equipments and technologies and, based on the domestic situation, engaged in active research and development in computer science, design, process control, technological improvement, information retrieval, file management and business management. By applying the research and development results to production and management, the efficiency and management standard were improved and noticeable economic benefits were derived. For example, the Luoyang Bearing Plant used computer in their sales activities and saved great amount of manpower and time and improved their management level substantially. In the meantime, the leadership and the department in charge were provided with accurate and timely statistics for production plan adjustments and the management standard and adaptive ability of the entire enterprise were improved.

The 12th Party Congress pointed out that economic construction must rely on science and technology, and technology must face the needs in economic construction. Since then, the State Council has established leadership groups on computer and on LSI. The various enterprises in China are also stepping up computer applications by establishing leadership groups and actively engaging in computer development. As Engels put it: "Once the society has a certain technological need, this need will push science forward faster than a dozen universities". Today China faces the awesome challenge of the fourth technological resolution symbolized by such new technologies as microcomputers. In order to bridge the gap in economy and technology between China and the developed nations, we must respond immediately without hesitation. We must adopt the advanced science, technology, and management method in building China into a unique socialist country.

Faced with this new situation, how should the electronics industry react? In a discussion on strategic development goals, the Ministry of Electronic Industry recently pointed out that the electronic industry is responsible for three tasks: serving the military technical equipment units, serving the national economic equipment units, and serving the civilian electronic products supply units. For this reason, the development of the electronic industry must begin first and there should be a lead time in order to reach the goal of an eight-fold increase in the total value of production in the electronics industry by the end of this century. To realize this goal, there are something that we must do and there are also certain things that we should not do. We should let priority programs such as LSI in military equipment and computer development move forward the entire electronics industry and efforts should be made to develop system engineering and production data type of electronic products. A transformation from providing single unit to developing engineering systems should be made to improve the technical service for the various departments in the national economy and the economic efficiency of the society and contribute to the "four modernizations".

To meet the challenge of the fourth industrial revolution, I offer the following suggestions regarding the pace of developing the electronics industry in Shanxi:

1. Leaders at various levels and responsible departments should improve their awareness of the position and role of the electronics industry in the construction of energy and heavy chemical industry.

2. The development of the electronics industry in Shanxi must have its unique features and must be built around serving the energy bases and providing modern electronic equipment and products for the coal industry. It should be supplemented by an electronics industrial system that provides the market with esthetic, modern and durable electronic products.

3. The development must be province-wide and uniformly planned. It should be based on the policy of a coordinated development in technology, economy and society. There should be a strong leadership and close collaboration and the manpower, material and money should be deployed centrally.

4. In order to provide Shanxi with advanced high quality electronic equipment in its technical improvements, we must import certain necessary technologies and equipment so that the technical improvements may proceed at a faster pace in Shanxi's industrial and agricultural development.

5. Shanxi must adopt a technical policy that suits the local situation and favors the development of the electronics industry.

We firmly believe that the party and the state have established a science and technology development policy for China and the electronics industry will surely create a new situation and make appropriate contributions to the strategic goals of the economic construction.

9698
CSO: 4013/194

BRIEFS

MARGARINE, OIL PRODUCTION LINE--Beijing, 16 Nov (XINHUA)--A production line making margarine and other edible oils and fat went into operation today on the eastern outskirts of the Chinese capital. Imported from Alfa-Laval AB. Sweden, the production line is the first of its kind in the Chinese capital. It has an annual capacity of 15,000 tons of salad oil, shortening, cocoa butter substitutes and margarine, enough to meet the city's needs for making cakes, cold drinks, sweets, instant noodles and Western foods. Meanwhile, it has been learned that a production line for insecticides, disinfectants and other cleaning chemicals has been imported from the United States and will go into operation this month in Beijing. [Text] [Beijing XINHUA in English 0659 GMT 16 Nov 84 OW]

CSO: 4020/35

WARSAW WEEKLY EYES IMPROVING PRC-POLISH TRADE RELATIONS

Warsaw POLITYKA in Polish No 42, 20 Oct 84 pp 17, 19

[Article by Andrzej Halimarski: "The Sun Through Thick Clouds"]

[Text] The 35th anniversary of the establishment of diplomatic relations between the Polish People's Republic and the PRC is this October. The cooperation between both of our countries during these 35 years has passed through different periods, good and bad. After the dynamism and comprehensive development during the first 15 years, an equally long period of standstill and stagnation occurred. It was only the beginning of the 1980's that brought what the Chinese characterize as "the sun breaking through thick clouds."

The period beginning at the end of 1978 was characterized by intensifying changes in the domestic policy of China, which at the beginning of the present decade also began to include the sphere of foreign policy. The leadership of the PRC conducted a critical analysis of the negative phenomena associated with the "cultural revolution" (1966-1976) and initiated profound reforms. At the end of the 1970's and the beginning of the 1980's there was a revaluation of many dogmas previously in effect with respect to the sphere of foreign policy; the attitude toward the USSR and the European socialist states, including Poland, gradually began to change. There was an elimination of the negative phenomena from the previous period that hindered a real normalization of relations with these countries. These changes were favorably assessed in Warsaw.

Revival of Trade

Economic cooperation, although also encountering various kinds of obstacles and difficulties, generally developed fairly successfully, even during difficult periods in our mutual relations. The beginning of the decade showed that the tendency toward growth noted in the second half of the 1970's was being maintained. Turnover in 1980 amounted to 435 million Swiss francs (it is in this currency that the accounts are settled). Unfortunately, in 1981 there was an abrupt regression. The Chinese, in connection with the announced policy of "putting in order and regulating" the national economy, as part of curbing the excessively expanded investment front, instituted drastic restrictions on imports of machinery and equipment, which traditionally constitute the main items in Polish exports to the Chinese market (55-70 percent.) These restrictions affected not just our country, but also most of China's partners exporting

investment equipment. As a result of these decisions, the value of trade turnover in 1981 fell to 47.3 percent of the previous year's level (205.8 million Swiss francs). Exports and imports declined by similar proportions. In 1982 there was a growth in turnover, but it still constituted barely 53 percent of the level achieved in 1980 (actually, it was 28 percent higher due to additional barter contracts). The year 1983 brought the next symptoms of an "emergence from the pit." The turnover grew by 56 percent in comparison with the previous year (to 362 million Swiss francs). Due to transactions in addition to the contracts, trade turnover in 1983 actually reached the record level of 470.1 Swiss francs. During the visit by Deputy Minister W. Gwiazda to Beijing in March 1983, there was a preliminary discussion of Poland's participation in the modernization of industrial plants in the PRC that had been built during the 1950's with our assistance.

An important event in mutual relations was the arrival in the PRC in the second half of December 1983 of a government delegation from Poland, with Foreign Trade Minister T. Nestorowicz. This was the first visit to China in 10 years by a member of the Polish government of that rank. The delegation also included Deputy Chairman of the Economic Planning Commission S. Dlugosz. The guests conducted talks with the heads of China's economic ministries. During these talks there was a detailed review of mutual economic relations. One of the subjects was Polish participation in the process of the modernization of certain branches of the PRC's national economy. The Polish delegation visited the province of Yunnan, from which we buy considerable amounts of tea, and in which we are involved in the construction of a mine for zinc and lead ore. The delegation was also received by the first deputy premier of the PRC, Wan Li. During the meeting, the host stated the following, among other things: "China is following developments in socialist Poland with enormous interest. We are very satisfied with the way in which the Polish people are gradually overcoming the difficulties, the political situation is already stable, and the economic situation is improving... In recent years," Wan stated, "trade relations between China and Poland have been developing very rapidly. The present visit by the minister of foreign trade and his talks with Minister Chen Muhua, and also the numerous meetings (...) will bear fruit in the further development of trade and economic cooperation." Minister T. Nestorowicz expressed the opinion that the talks conducted indicated enormous possibilities for mutually beneficial Polish-Chinese cooperation. In his opinion, particularly favorable conditions exist for the development of cooperation between both of our countries in the areas of the coal industry, the reconstruction of industrial plants, and railroad transportation.

The agreements signed on trade and payments between the PRC and Poland for 1983 provide for a total turnover in clearing currency in the amount of 452 million Swiss francs. This means a growth of 25 percent in comparison with the treaty of 1983. One should expect this sum to be exceeded due to additional barter transactions.

In the years 1980-1984, Poland imported from China, among other things, rice, tea, edible oil, pork sausages, cotton and silk cloth, knitting products, clothing, rubber boots, canned fish and meat, leather, writing instruments, yarn, truck and tractor tires, chemical raw materials, semifinished products, and nonferrous metals.

For its part, our country delivered to the Chinese market textile machinery and mining equipment, polyester fabrics, metallurgical products, Polonez and Fiat 125P automobiles, chemicals, window glass, sulphur, soda ash, and other goods. During this period, there was a decline in deliveries of machinery and equipment in our exports--from 60 percent in 1980 to 6.3 percent in 1983 (an increase to 28 percent is planned in 1984). On the other hand, there was an increase in the proportion of exports of raw and other materials--from 17.5 percent in 1980 to 79.2 percent in 1983. An important place in imports was occupied by consumer goods and agricultural-food goods, and as usual raw and other materials.

Credits for Poland

In April Poland was visited by a representative delegation from the Economic Committee of the State Council of the PRC, with its deputy chairman, Prof Chu Zhongyi. Its purpose was to investigate the possibilities for participation by Polish industry in the large-scale program undertaken in the PRC for the modernization and reconstruction of industrial plants. A protocol was signed specifying the area of cooperation and designating the specific industrial facilities in the PRC in the modernization of which the Polish side would participate, and also the area for deliveries of technology and equipment from our country. The fields of cooperation agreed upon include, among others, the coal, agricultural-food, machinery, and electronic industries. Nineteen concrete proposals presented by the Chinese were considered; decisions were made on 15, and talks were conducted regarding the others.

An important event was the June visit to our country by Chen Muhua, state councilor and the PRC's minister for economic cooperation and foreign trade. This was the first visit to Poland in 24 years by a Chinese politician of that rank (the level of deputy premier). During the visit two important documents were signed: a treaty between the Government of Poland and the PRC on economic and technical cooperation, and a protocol on the subject of creating a Polish-China Committee on Economic, Trade, and Scientific-Technical Cooperation.

Two other Chinese delegations also visited our country in June 1984: one led by Chairman of the Bank of China Jin Deqin, and the other, from the Ministry of Water Resources and Electric Power, led by the deputy minister for that ministry, Li Daigeng. The decisions made provide for the development of cooperation in the currency-financial area, and a considerable expansion of energy cooperation. This year our country will also be visited by several other economic delegations from the PRC. All of this creates favorable prospects for the development of economic cooperation.

Deputy Minister W. Gwiazda, describing the present state of trade and economic cooperation between Poland and the PRC, stated: "I think that the real task in the next few years will be to achieve an annual turnover in the amount of 1 billion Swiss francs."

After a 7-year hiatus, China again took part in this year's Poznan International Fairs (MTP), presenting a fascinating exhibition that brought the 35 products presented in it an MTP gold medal. The Polish Chamber of Foreign Trade is preparing a large display of Poland's possibilities for exports to the PRC in 1985.

One cannot avoid recalling that during the difficult years at the beginning of the present decade, the Chinese came to our assistance, granting credits for the purchase of frozen pork carcasses in the PRC (50,000 tons in 1982, 20,000 in 1983, and 10,000 in 1984). The meat credit from the years 1982-1983 is for 10 years, and Poland is obligated to repay it 10 years after it was given in accordance with the prices for that commodity in the year of repayment. On the other hand, credit deliveries of this same commodity in 1984 should, according to analogous principles, be settled for in 1989. China also granted us credits for the purchase of other market commodities (among others, rice, tea, cotton fabrics, suits, clothing, school instruments, etc.). A 50 million Swiss franc credit issued in 1983 will be repaid in 1988 with deliveries of mining machinery and other goods. In 1984 we were issued a subsequent commodity credit in the amount of 20 million Swiss francs. Its repayment, under similar conditions, is to take place in 3 years. It is worth recalling that at the end of the 1950's, when China was experiencing serious difficulties as a consequence of the "Great Leap Forward" policy, our country also gave credit assistance to its Chinese partner.

What Is New After the Hiatus?

In the fall of 1982, a decision was made to resume scientific-technical cooperation at the government level, which was interrupted in 1968. The Intergovernmental Mixed Commission was reactivated. The number of topics adopted for study was 26 (13 on each side). In practice there were a few more of them, since both sides presented new projects, some of which were accepted. This year's 17th session of the commission, which will take place in our capital, promises to bring a substantial expansion of the scope of cooperation (to about 50 subjects). The partners' main interests have traditionally been mining and mining machinery, agriculture, fruit-growing, construction and construction materials, and certain sectors in the chemical, machinery and medicinal industries.

Cooperation in the area of shipping has a tradition of more than 30 years. The Polish-Chinese Society of Shipbrokers, Chipolbrok, was formed on 29 January 1951. This society played an important role in overcoming the American blockade and the embargo that Washington imposed on the PRC in the 1950's. Cooperation in this area is developing successfully, bringing benefits to both partners. In January 1984 the Chipolbrok fleet had 24 units (12 under each flag). The recent decline in the world shipping market could not help having an effect on the results of the society's work, although it was a relatively small drop in comparison with other large shipping enterprises. Chipolbrok has a central office in Shanghai, a branch in Gdynia, and an acquisition-port representation in Beijing.

In November 1983 the "Dar Mlodziezy" flag frigate of the Higher Maritime School came into port in Shanghai and was cordially received by the government and the citizens of China's largest city.

One should assume that in the near future there will be a resumption of the cooperation interrupted in 1968 between the academies of science and between individual scientific institutes of both countries. The first steps in this direction have already been taken. In August 1983, at the invitation of the

Committee on Science and Technology of the PRC State Council, a visit to China was made by a delegation from the "Poland 2000" Committee for Research and Predictions of the Presidium of the Polish Academy of Sciences, with the chairman of the committee, Prof Wladyslaw Markiewicz. Other Polish scientists have also visited the PRC. The exchange of students and postgraduate students, which has a 30-year tradition, is being renewed. At the request of the Chinese side, sinologists from the University of Warsaw will take part in work on the Polish-Chinese dictionary being prepared in the PRC. The exchange of publications between the Universities of Beijing and Warsaw is being developed. In accordance with an agreement that was concluded, during 1982 and 1983 Chinese lecturers resumed work at the Department of Chinese Studies at the University of Warsaw, as did Polish counterparts at the Institute of Foreign Languages in Beijing.

After a 20-year hiatus, cooperation between health service ministries has been resumed. In June 1984 a Polish delegation, headed by Deputy Minister of Health and Social Welfare S. Gura, visited Beijing.

Finally, here is some information on cultural cooperation. Even though thus far there has not yet been a renewal of cooperation at the governmental level, based on annual or semiannual agreements, which was interrupted in 1967, recent years have brought a significant revival of contacts.

After a long hiatus, PRC documentary and feature films have returned to Polish movie and TV screens. The films "Memories of Old Beijing," which received an award at the Film Festival in Manila, and "Passenger in Handcuffs" have been shown in Poland. "Con Amore," "Tredowata," and "Hubal" enjoyed great success among Chinese viewers. A group of Polish documentary film workers visited China, and the results of their work have been shown on television.

Contacts between journalists have been resumed. One should hope that there will soon be a resumption of cooperation between the journalist associations of the two countries.

In March 1983, at the Polish consulate general in Shanghai, there was a pleasant ceremony at which the decoration "Contributor to Polish Culture" was presented to Prof Chen Kuangshen of the Shanghai Pedagogical Institute by the Polish minister of culture for his services in the field of translating Polish literature into Chinese. Prof Chen was the translator of "Krzyzacy," among others.

In recent years several translated items from Polish literature have been published in the PRC, including "Opowiesci biblijne" by Z. Kosidowski, "Zapiski mlodego warszawiaka," collections of short stories by H. Sienkiewicz, B. Prus, and E. Orzeszkowa, and a book on Chopin by Prof Z. Lissa. Many items from classical Chinese literature have been published in Poland, along with books by Polish and foreign authors devoted to the culture, art, literature, geography, history, and cuisine of China. Literary journals have printed the latest works by Chinese authors (among others, an entire issue of LITERATURA NA SWIECIE was devoted to them).

In assessing the present state of Poland's relations with the PRC, Foreign Minister S. Olszowski stated the following in a speech in the forum of the Sejm on 13 February 1984:

"There has been an improvement in relations with the PRC. It is a known fact that there are differences in the views of Poland and other socialist states and those of China on many important international problems. On others, however, our positions coincide. We are interested in continuing mutually beneficial cooperation in the economy and in other fields."

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LABOR AND WAGES

JOB WAGE SYSTEM DISCUSSED

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[Article by Qian Shiming [6929 0013 2494] and Tong Yuanshi [4547 3293 6524]: "On the Job Wage System"]

[Text] Leading comrades of the Party Central Committee have pointed out: Reform of the administration and management of enterprises has driven the wage system to reform in the direction of job wages and floating wages. They have also stressed and explicitly point out: It looks as though we still need to adopt job wages, and the question of core intellectuals, particularly middle-aged intellectuals, must be resolved by job wages. We believe that this is highly significant in guiding the reform of the current cadre wage system. This article intends to investigate several problem concerning job wages.

I

One of the drawbacks of the current system is that the present wages of middle-aged staff workers tend to be low. Among middle-aged staff workers, middle-aged cadres--particularly middle-aged intellectuals--represent quite a large majority and their wages are lower than workers of the same ages, thus forming the so-called inverse wage relationship between the physical (physical workers) and the mental (mental workers). The cause of this is that some "leftist" stuff had been involved in wage distribution. For many years the following conditions have existed: (1) Several times the levels of graded wages of colleges and technical secondary school graduates had been reduced. (2) There are too many wage grades for cadres and intellectuals, the differences among middle and low grades are small, and normal promotion has not been implemented. On the contrary, the original concept of varying amounts had been altered in the name of "similar grade" and a cadre's wage grade with a low absolute figure was regarded as similar to a worker's wage grade with a higher absolute figure thereby arbitrarily moving the majority of cadres with low wages outside the scope of "readjustment of low wages." Whereas, through readjustment of low wages, middle-aged workers under the wage standards of "few grades, large grade differentials" rapidly caught up with and surpassed the wage level of middle-aged intellectuals and an inverse relationship between the wages of physical and mental work started to become apparent. (3) Soon after the cadre job grade wage system was set up in the mid-1950's,

it was stipulated that cadres would be promoted on their jobs but not in wages. The job factor was eliminated when there was a wage promotion so that the job grade wage system exists in name only.

In determining the wage levels of staff workers there are always the three factors of initial wages, grade differentials and promotion opportunities. Cadres and intellectuals are no exception. In order to basically avoid the abnormal inversion of wage relations between physical and mental workers and keep cadres and intellectuals who engage in relatively complex work at a slightly higher wage level than physical workers, we certainly need to appropriately increase the standards of graded wages and readjust wage differentials, but primarily we must restore and perfect the cadre job wage system.

Cadres and intellectuals engage in mental labor. Not only do they generally need to have more learning and more complex technical and professional ability than physical workers, but among the cadres and intellectuals themselves the gaps between their levels of learning and professional abilities are beyond comparison with those in work ability among physical workers. Compared to ordinary cadres, a cadre who is responsible for important leadership work is vastly different in the scope of their jurisdiction, the responsibility they shoulder, the difficulty of policy decisions and therefore the necessary political and ideological qualities, technical and professional knowledge, work practice and experience and the ability to organize and lead. Conditions are similar for intellectuals who engage in scientific research, teaching, engineering techniques, economic management and other professional work. Variations in their levels of learning and professional ability generally take a cascade ranking. From low to high, a certain number of "steps" with big "drops" are ranked in order. It takes an accumulation of enormous efforts in order to climb up, and for each "step" climbed one can pioneer a wide realm of new creative work. In terms of individual cadres and intellectuals, because of their differences in talents as well as the difficult amounts of toil and time spent on learning, intensive studying and tempering, some can climb one grade at a time, some more than one grade at a time and some may stop along the way and do not advance. Therefore, in climbing to the highest step, some take only a relatively short period of time, some take a relatively long period of time and some may never be able to "reach the top," which shows extremely great imbalance.

To suit the characteristics of mental labor resources that take an in-depth "cascade development," the wage grade system should be matching the multi-level "structure." A "step" in the cascade development of mental labor corresponds to a level in the multi-level wage structure. For a wage level between two levels we must maintain a matching and great "height" with the "drops" of "steps" in the cascade of mental labor. In between we can set up several small wage grades as a transitional "cascade." Only if people climb to a certain cascade "step" in mental labor, regardless of the wage step affected by regular readjustment, in general it should immediately promote (including promotion by more than one step at a time) to the wage "level" corresponding to the "step" in mental labor. Such an unusual opportunity for wage promotion by more than one step at a time built on the basis of "cascade development" of mental labor is an effective way to prevent inversion of the wage relationship between physical and mental workers.

Comrade Deng Xiaoping in his important talk entitled "Reform of the System of the Party and State Leadership" delivered at the expanded conference of the Politburo in 1980 clearly pointed out: "We cannot always defend the old concept concerning steps. The promotion of cadres cannot be limited to the existing type of steps for districts, counties, prefectures and provinces among party and administrative cadres. All trades and professionals should have different steps, different jobs and job titles." Comrade Deng Xiaoping's completely new understanding of "steps" has an extremely profound significance in guiding the reform of China's personnel and wage systems. Based on this completely new understanding, we believe that so-called cascade "steps" of the development of mental labor are "job titles" as far as cadres with professional skills are concerned, and as far as political and administration cadres are concerned they are jobs or job titles which were practiced in the 1950's but now exist only in name. Therefore, the top priority in the reform of the existing wage system is to once again implement the job wage system among cadres.

II

Implementation of job wages is not simply restoring the original job grade wage system by merely readjusting and changing grades, grade differentials and job grade demarcation but should carry out a major reform of the entire job wage system.

As the term suggests, job wages are wages which particularly reflect the factors of job promotion and transfer of cadres. In other words, we must regard jobs as a main factor in determining cadres' wages.

Wages are compensation for labor. What determines wage differentials should be the quantity and quality of work a staff worker provides for the society. It is limited by many kinds of factors such as the degree of technical complexity, the relative importance of the work, the level of proficiency, the scope of responsibility and working conditions. In a certain sense it is even related to one's academic record, qualifications, record of service and length of service. Even if some factors may be incorporated in the "job" of the mental worker and indirectly reflected by it, some factors are found to be excluded by the "job" and need to be dealt with appropriately and separately when wages are determined. Therefore, there are two different ways by which wages reflect job factors:

First is the comprehensive method, which through a form of wages comprehensively reflects various factors and changes that affect the quantity and quality of labor but primarily the job factors. It uses a "package" wage amount to compensate for all labor expenses comprehensively incurred by various factors, primarily the job factors, just like the "job grade wage system" of the 1950's. Second is the resolution method which resolves the various factors that influence changes in the quantity and quality of labor and expresses them individually through different forms of wages and separately compensates them by several separate wage amounts. For example, the structural wage system suggested by some comrades through discussions; labor expenses caused by job factors are compensated by job subsidies and wages. We believe that the two methods of compensation mentioned above have different scopes

of suitability. For some factors of close internal relations which infiltrate and influence each other, are hard to be completely resolved and stabilize the trend of growth, using the comprehensive method to pay wages has the advantage of flexibility and ease of resolving special contradictions. Therefore, these two methods of wage compensation are not mutually exclusive. On the contrary, the law of distribution by work demands that we satisfy objective needs and adopt different combinations by suiting measures to human conditions, organically combine the two methods of compensation and implement complementary payment of compensation. In terms of the job wages of cadres and intellectuals, both the comprehensive and resolution methods have the objective necessity and practical feasibility of complementary combination.

Regardless of the various types of jobs among cadres and intellectuals, they can be boiled down to two, namely, work jobs and leadership jobs. We believe that we must separate the two. As far as our understanding goes, in the current system and as applied to various cadres with professional skills, work jobs are so-called "job titles." Job titles primarily reflect the level interval attained by various types of cadres in their academic level, professional ability and the corresponding actual performance, that is, the "step" reached by mental labor in in-depth "cascade development." Job titles have four characteristics: (1) They are not "empty titles." All categories of job titles at all levels should have their own duties of work posts, tasks and system of assessment. Job titles are therefore work jobs in technical and professional areas. Under strict appraisal and daily assessment, job titles not only reflect the potential work capacity of cadres but also symbolize the amount of labor actually provided to the society. (2) Job titles are closely related to such factors as the degree of technical complexity, work proficiency as well as academic records, qualifications and record of work and the fixed number of work years which are hard to be completely resolved. (3) Only by practicing the system of job titles, those with job titles are always the majority of cadres. (4) Changes in job titles show a tendency of steady enhancement. Of course, for one reason or another some people will stop and cease to progress from low or middle job titles, but demotion or removal are generally very rare.

We can therefore consider job titles the primary thing, combine and consider other labor factors and use one wage amount as compensation through one comprehensive form of wages. This is the "job title (work job) graded wage system." Actually, this was explicitly proposed by Comrade Xiaoping in 1979 in his report entitled "Senior Cadres Must Take the Lead in Carrying Forward the Fine Traditions of the Party" at the conference of cadres at and above vice ministerial posts of the Party, administrative and military organs of the Party Central Committee. At that time he pointed out that "In schools there should be such job titles as professors (grade-one professor, grade-two professor, grade-three professor), associate professors, lecturers and teaching assistants. Among scientific and research units there should be such job titles as research fellows (grade-one research fellow, grade-two research fellow, grade-three research fellow), associate research fellows, assistant research fellows and research trainees. Among enterprise units there should be such job titles as chief engineers, engineers, chief accountants and accountants. One who matches these standards should be given his corresponding

job title and should enjoy the corresponding wage treatment." This can be traced to the same origin as his completely new understanding on "steps" in 1956 quoted earlier and this resolves the major problem in the wage system of cadres and intellectuals. It is hard for us to imagine that if we do not resolve work jobs (meaning job titles here) as a measurement to quantify labor and to pay compensation, then what do we rely on to determine the wages of the great majority of intellectuals, including various cadres with professional skills as well as cadres who engage in political work, administration and rear services? Do we rely on lengths of service and academic records? Practice in recent years has already proved that this would cause strict egalitarianism. Do we rely on technical and professional skills, duties of work posts and performance? This does not differ from the criteria of evaluating job titles. Apart from job titles are there better criteria to evaluate the wages of intellectuals?

Moreover, leadership jobs such as administrative, educational, scientific research and production leadership jobs are entirely different from work jobs. The characteristics of leadership jobs are: (1) Over a period of time, very few cadres undertake leadership jobs. (2) Through election, hiring, recommendations, appointments and other ways of job hirings and dismissals, those who undertake leadership jobs inevitably rank higher and lower than some; promotions and demotions show a tendency of frequent changes. Therefore, resolving the factors of leadership jobs from those various factors which [illegible] the amount of labor put out by cadres and individually adopting the form of "leadership job subsidies" to pay compensation is not only a simple and convenient method but has the advantage of flexibility and suits the objective needs of compensation according to work.

As an abstraction of labor that forms various factors, we must resolve and differentiate the two factors of work jobs and leadership jobs; and in determining the specific wages of cadres we must at the same time give consideration to both factors and compensate for them respectively. The basic shortcoming of the job grade wage system in the 1950's was the failure to clearly differentiate work jobs and leadership jobs by the general use of the single concept of "job." Consequently when determining the wages of cadres the two factors could not be considered at the same time. In actuality only one thing was concentrated on and only one factor was considered. In other words, those with job titles had their wages determined by grades of job titles and the other cadres had their wages determined by leadership jobs. Determination of wages by job titles was only partially implemented among cadres with professional skills. If they concurrently undertook leadership tasks they would not be given supplementary compensation and would not get more for extra work. Thereby a small number of leading cadres were under the system of life-tenure whose wages were determined by leadership jobs, while the work job factor of the large number of cadres whose job titles had not been evaluated and who had never undertaken leadership jobs were entirely disregarded. It might well be asked, how should the wages of these cadres be determined? And for how long?

When quantifying work, we must resolve the two factors of work jobs and leadership jobs. When determining compensation, we must consider these two factors at the same time. We believe that what conforms to the demand of this system of work compensation is the form of job wage system combining [illegible] job title (work job) graded wage system and leadership job subsidies.

Implemenation of the wage system which combines the job title (work job) graded wage system and leadership job subsidies is both a major reform of the job grade wage system of the 1950's and a breaktrhough in the advance of the cadre wage system in overcoming egalitarianism and conscientious implementation of the principle of distribution according to work.

Specific ideas on the new cadre wage system are as follows:

First, the job title (work job) graded wage system. For various categories of cadres with professional skills, determination of wages according to work jobs can mainly adopt the job title graded wage system. The job title graded wage system is established on the basis of the system of job titles which is complementary to the system of job titles. Job titles can be divided into two categories. In the first category, the lowest grade of a job title must have an educational level of a college graduate which can be represented by job titles of higher education and scientific research. In the second category the lowest grade of a job title must have a technical secondary school education, which can be represented by job titles of engineering technicians and economic management personnel. The highest grade of a job title for all categories of cadres in all trades and professions cannot be "arbitrary." Based on the limit that can be attained in reality, some can correspond to grade-one professor, some can correspond to grade-one associate professor and some can correspond to grade-one lecturer. We cannot stubbornly "promote" toward grade-one professors for job titles of the highest grade when we set up the system of job titles and inappropriately build so-called "corresponding" or "matching" relationships. The wage standards of job title grades of all categories of cadres in all trades and professions should be centralized and adopt the method of "several grades for each job, different grades overlap." But the demarcations of wage grades in all categories of jobs should not be "arbitrary." According to the actual difference in the amount of work provided, some grade demarcations can be drawn slightly higher and some slightly lower; some can be drawn slightly longer and some slightly shorter; some can overlap one grade and some several grades. Wage promotion within each grade demarcation should be based on daily assessment and carried out regularly. After a job title promotion, a cadre's wages should immediately enter the lowest grade of that job title; the early period of reform, if the differential is too big, step by step transition can be permitted for several years. Those who for some reasons cannot be promoted further on the basis of job title of a low or middle grade while wages have already reached the highest grade of that job title, should be transferred through [illegible] personnel interchange to work posts which better suit the role of their abilities. If they must be retained due to the necessities of work, they should be accordingly given low-scale subsidies for length of service after they exceed the prescribed terms of service.

Second, leadership job subsidies. Through election, hiring, [illegible] and appointments, cadres undertake various leadership jobs such as administrative leadership jobs, including chiefs and deputies of sections, [illegible] and bureaus; educational leadership jobs including principal and [illegible] heads of teaching and research sections and departments, [illegible]

research leadership jobs including directors and deputies [illegible] offices and research institutes should be separately given low-scale and varying amounts of leadership job subsidies. The scale of subsidies must be lower because after undertaking leadership jobs, professional work relating to the job titles is bound to be correspondingly reduced while job title graded wages will be issued as usual without a decrease. Leadership job subsidies change along with leadership jobs; they can increase or decrease, and there may or may not be any subsidies.

Third, job wages of state organs. With the exception of engineering technicians and economic management personnel who come under the system of job titles which determines wages according to job titles, other cadres of state organs are under the job grade wage system. Cadres who are engaged in political work, administrative work and rear service in enterprise units and public agencies are likewise. This is the traditional job grade wage system. Such wage system does not resolve leadership jobs and work jobs. It purely emphasizes leadership jobs and stipulates wage increases along with leadership jobs. It also does not regard work jobs as a category of "jobs" so that work jobs have not occupied a place in the order of job grades set up in the job grade wage system. Actually the traditional job grade wage system is merely a leadership job grade wage system. Due to the limitations caused by "having few officers and numerous troops" in the cadre deployment structure, those who can be promoted to leadership jobs at or above the rank of section chief are extremely few while the system of job titles does not apply to the other people. Therefore, even though quite a few people have strong work ability, undertaken heavy work responsibilities and achieved major work results, wages can only fluctuate around the highest wage grade of cadres in general precisely because there are no promotions to leadership jobs, and even for all their life there is no way to breakthrough that lowest "ceiling" in the "multi-level structure" of wages. In this way, it becomes very difficult to keep college and technical secondary school graduates in state organs, and if we were to arrange them in management posts in public agencies, unless they clearly belong to the establishment of specialized cadres and enjoy the wage treatment of specialized cadres they would not be satisfied in their posts or they might simply quit working. Besides, as the wage grade is too low for cadres in general and the differential is great compared to the same level of leadership jobs, even if leadership jobs can be at a higher or low level, it is difficult to readjust wages to keep in step. After receiving high wages in leadership jobs, it is difficult to reduce them to the wage level of cadres in general thereby causing only increase but not decrease to leadership job graded wages and causing leadership job wages to be often out of line with leadership job grades and to become passive.

Therefore, the drawbacks mentioned above must be overcome and the traditional job grade wage system in state organs must be reformed. The direction of reform is the resolution of work jobs and leadership jobs even in state organs. The program of reform can be the implementation of the system of job titles also among cadres in political work, administrative affairs and rear services, such as establishing a graded series of job titles of political work chief or administrative manager corresponding to the series of job titles for economic management personnel. Only if we make evaluation and assessment of job titles strict and organs small in number but highly [illegible], [illegible]

there will not be any major confusion in the implementation of the job title graded wage system among organs. After the job title graded wage system is implemented, we must correspondingly abolish the current system which determines wages according to leadership jobs; leadership job subsidies can be separately issued to cadres who undertake leadership jobs at various levels outside the job title graded wages. If we worry that reform might be too rapid and cause confusion, we can fall back and aim for the second best and think of an alternate program as a transition by concurrently setting up the two graded wage systems of leadership jobs and work jobs and setting up a series of several grades even for work jobs of cadres in general such as office workers, grade-three section members, grade-two section members and grade-one section members. For wage grades we can also adopt the method of "every job with several grades, different grades overlap." The highest wage grade of grade-one section members can be at the same level as the leadership job wage grade of the bureau chief. Trainees promoted to officer workers must have a technical secondary education besides other qualifications; correspondingly, office workers promoted to section members must have a college education. After they undertake leadership jobs, cadres in general should not be given leadership job subsidies but should conform to the principle of accommodating high but not low, or maintain their orginal work job graded wages, or given leadership job graded wages. However, once leadership jobs are readjusted, their original work job graded wages must be restored.

In reforming the current cadre wage system and implementing the combined wage system of the job title (work job) graded wages and leadership job subsidies, we believe that we can give play to at least four positive roles as follows: (1) preventing an inverse wage relationship between physical and mental workers; (2) coordinating with the reform of the cadres system favors the abolition of "life-tenure" for leadership jobs; (3) encouraging and promoting all cadres (including administrative and management cadres) to become more knowledgeable and specialized; and (4) initiating conditions for the interchange for talents and reducing the hindrances of transferring cadres to other posts (particularly assigning specialized cadres to undertake management work).

IV

In implementing the wage system which combines the job title (work job) graded wage system and leadership job subsidies, we must corresponding adopt the following measures as complementary conditions:

First, unify standards, adhere to conditions, and evaluate and promote job titles on the basis of strict assessment.

We must formulate nationally unified standards for job titles, strive to draw up explicit and concrete conditions for giving job titles, and guard against being general, ambiguous and too principled in order to avoid leaving extremely wide latitude for being either flexible or strict. In order to adhere to the conditions and unify standards, high-grade job titles must be centrally balanced and appraised within the local limits. There must exist no slightest way. As for the problem of inconsistently flexible or strict enforcement of standards current in various localities and units, we should

carry out a reexamination and reorganization before implementing the job title graded wages. For those who are not qualified we should reevaluate their job titles according to their actual level of competence before switching them to the job title (work job) graded wage system.

In-depth "cascade development" of mental labor is basically and highly imbalanced. Some can attain a high grade level of job title while some can merely stay around middle grades or even low-grade job titles all their life.

This is very normal and consistent with the law. Unified standards for evaluating job titles can be no other than academic qualifications, professional ability and actual work result. Maintaining the state levels of China's various high-grade job titles is an extremely serious matter. For no reason should we lower the standards to accommodate and make allowance. The current main trend is to consider the fixed number of years of work and puruse "seniority according to qualifications," which means academic records + the number of years = job title. Apparently, only by going through a fixed number of years, regardless of their level, ability and contribution, college graduates of the 1950's and those in their fifties or those who are "chiefs" should be given a job title at a high grade. If so, job titles would lose their original meaning and become synonymous with old, middle-aged and young cadres.

Bachelors and Masters degrees can be the basis only for determining initial wages. Compared to the conditions for granting academic degrees, the conditions required of job titles are broader in scope and higher in standards which not only include academic level but also professional ability and work achievements. Therefore, when degree-holders apply for job titles they still need to be appraised and approved according to the conditions stipulated. A certain grade of job title will be given when conditions for that grade are met; we cannot simply copy according to the academic degrees.

It is not suitable to conduct an intense appraisal "campaign" for job titles--particularly those at higher grades--once every so often, and do a crash job of "large batch process", as this can easily cause nervousness in vying with each other and fear of being late for work, and can easily result in uniformity to the general trend and the attitude of "being there just to make up the number." Particularly when we begin implementing the job title graded wage system and when we link wages to job titles, we must pay more attention to prevent the unhealthy trend of crash promotion. In the future, evaluation of job titles must be gradually institutionalized and made a regular practice. We must strengthen daily appraisal and deal with one as soon as it is time.

Second, establish and perfect the daily work appraisal system for those who have job titles (work jobs) and leadership jobs.

Regardless of job title (work job) graded wages or leadership job subsidies, they are work compensation belonging to the scope of hourly wages. The main characteristic of hourly wages is that they merely compensate for the amount of work a worker provides the society within a definite period of time.

In order to ensure the actual workload of cadres being no less than that required by job titles or job wages, we must strengthen daily work appraisal of cadres.

Organs must be small in number but highly effective. To do our best in determining the size of establishment we must determine the work post, work responsibilities and workload of every cadre and strengthen frequent appraisal. If for subjective reasons one cannot complete one's leadership job or the work responsibilities and requirements of one's post within two consecutive years, we must appropriately readjust those who undertake leadership jobs and correspondingly readjust their leadership job subsidies. Those with job titles may temporarily keep them for a specific period but their job title graded wages should be suspended temporarily and replaced by wages of lower grades. When they complete their workload the original wages should be restored. If by the time one still cannot complete the quantity and quality of work, then readjustment of one's job title should be considered. After job titles and wages are linked one should not follow the "iron rice bowl" model which permits promotion but not demotion.

Third, the current personnel system must be reformed in a complementary way.

After implementing the job title (work job) graded wage system, the incoming transfer, training, promotion, conveyance and rational interchange of qualified people should be correspondingly reformed in a complementary way in order to give full play to the good qualities of the job wage system.

Fourth, we can implement a special wage system among the "three have-not" personnel.

Regardless of when and which units, there is bound to be a number of "three have-not" personnel who have no academic records, job titles and leadership titles. Large numbers of them exist particularly in the early period of reform when new people, new things and the new cadre system replace the old. We must do a good job in arranging their wage relations and implement a special job wage system that differs from those discussed earlier. We can implement a system of basic wages plus work post subsidies for some and a system of basic wages plus subsidies for length of service for others. Those among them who undertake leadership jobs can also be given job subsidies. Through further training and enhancement, those who are given job titles or promoted in their work jobs may switch to the job title (work job) graded wage system.

For the old cadres who have no academic records and job titles but have held leadership jobs for a long time, their wages can be handled according to the principle of "applying the new system to the new people and the old system to the old people."

9586
CSO: 4006/770

ANHUI PROMULGATES TRIAL RULES ON LABOR CONTRACTS

OW230803 Hefei Anhui Provincial Service in Mandarin 1100 GMT 19 Nov 84

[Excerpts] In order to facilitate reform of the labor system and improve the labor contract system, the provincial people's government formulated and promulgated on 5 November trial regulations on labor contracts and trial regulations on social security and welfare and remuneration for contract workers in Anhui.

The trial regulationson labor contracts stipulate that in recruiting contract workers for an enterprise, a written labor contract must be signed by each party. The labor contract must be signed on a voluntary basis and after reaching agreement through consultations. It should mainly include details concerning job description, labor remuneration, security and welfare benefits, labor safety, sanitation, labor protection, labor discipline, rewards and penalties, term of contract, and liability of contract violation. After a labor contract is signed, in accordance with legal procedures, it will have legal binding force. It should be strictly observed by all parties concerned, and should not be altered or annuled arbitrarily.

The trial regulations on social security and welfare and remuneration for contract workers in Anhui stipulate that an enterprise should pay the medical expenses for a contract worker who becomes sick or is injured during off-duty hours and provide living expenses for him, depending on the length of hospitalization, as long as the labor contract remains valid. A contract worker who is injured on duty or who has contracted an occupational disease should be given free medical care by the enterprise as well as living expenses equivalent to his basic pay before incurring the injury or contracting of disease.

CSO: 4006/89

TRANSPORTATION

RAILWAY MINISTRY URGES STRICTER TRAFFIC CONTROL

HK100442 Beijing CHINA DAILY in English 10 Nov 84 p 3

[By staff reporter]

[Text] A campaign against unlicensed drivers has been urged after four people were killed when a passenger train crashed into a tractor in north China.

The Railway Ministry has asked highway traffic departments to enforce stricter countryside controls.

The accident occurred on October 29, at an unmanned crossing near Tumu railway station, about 200 kilometres west of Beijing, when a Moscow-Beijing train ran into the tractor and trailer, driven by a farmer.

Four people on the tractor died, and eight carriages were derailed.

Stressing the importance of rural traffic safety, Lu Shuxin, the ministry spokesman, said 937 people had been killed or injured in about 900 accidents at unmanned crossings during the first eight months of 1984.

As a result, 319 motor vehicles and 326 tractors were destroyed, and rolling stock had been damaged.

Most of the accidents were caused by rural drivers, who have recently flocked into the transport trade with newly-bought trucks or tractors, but no proper training or knowledge of traffic safety, said Lu.

He urged highway traffic departments and rural vehicle agencies to take immediate measures to train and provide safety education to countryside drivers, and to forbid unlicensed vehicles or drivers from using public roads.

The Railway Ministry had taken steps to improve level-crossing safety by setting up guard-posts or turning the crossings into overpasses, said Lu.

Water Dangers

Meanwhile, the Ministry of Communications has warned rural waterway freight and passenger carriers to observe safety rules or face legal penalties.

All carriers must submit vessels for safety inspections and obtain licenses for their boats and crews before beginning business.

This guarantees safety equipment such as lights, sirens, and lifebuoys on the vessels, and proper training for navigators, according to Liu Zhankui of the ministry's Bureau of Marine Safety.

The recent boom in rural water transport had contributed to the growth of the economy, but also caused safety problems, said Liu.

He cited an incident in Yueyang Prefecture Hunan Province, in June this year, when two rural ferry operators allowed 80 people to board an unlicensed motor launch--twice the boat's capacity.

The boat overturned, drowning 34 passengers.

Entering the shipping business without proper training and adequate safety knowledge and facilities would only cause economic losses and even prosecution for the operators, he said.

CSO: 4020/35

TRANSPORTATION

CHINA DAILY ON CHAOS ON BEIJING SUBWAY

HK110226 Beijing CHINA DAILY in English 11 Nov 84 p 3

[Report by Staff Reporter Chen Pingjun: "Huge Crowds Bring Bedlam to Subway"]

[Text] Beijing's subway, once noted for its well-maintained schedules, has been overwhelmed by a flood of passengers.

The number of passengers in the last half of October was 65 percent greater than a year earlier. As a result, there was up to half an hour's wait between trains, instead of the scheduled four minutes in busy periods.

The stations have been like bedlam at times: desperate passengers try to squeeze on, their luggage jamming doors and delaying trains. Drivers have climbed out to help shove passengers aboard, while uniformed attendants consoled the unlucky.

Until recently Beijing subway stations could have been described not only as orderly, but perhaps a little dull. Even last August, when passenger load was also heavy--second only to October--trains were maintaining an on-schedule rate 98.9 percent.

Last Sunday, only 46 percent were on schedule, according to the subway control centre. Two weeks earlier, the rate had been 30.3 percent, a record low. That day, 394,000 passengers took the subway, overloading the cars by 45 percent between 8 and 9 am.

"We had never seen anything like it since the subway service began in 1971," said Wang Wanzhong, head of the operational department of the Beijing Subway Company.

Passengers are faced with a dilemma, for the buses above ground are just as crowded, and quite slow.

Overcrowding

"I thought the subway would be much better than the bus and I could get home earlier," one young woman complained. "But the subway is just the same." She had waited for half an hour.

Normally, the trip from Pingguoyuan to Beijing Railway Station, the 23.6 kilometres of the main line's complete route, takes 40 minutes. Now, it can take an hour or longer.

"Overcrowding is the main reason," Wang said.

In the second half of October, overcrowding was blamed for delaying 756 trains, 65 percent of all delays. But that did not include trains held up by doors that jammed because of passengers' pushing against them; they were counted as equipment failure.

In the last four years, passenger load has increased an average of 15 percent a year. From last January to August, ticket sales were up nearly 26 percent from a year earlier, reaching about 52 million, to which should be added the trips of the 20,000 daily commuters who use passes.

The most dramatic increase began in mid-October after the lifting of the month-long restrictions on entering the capital because of the National Day celebration. Between October 18 and 31, 4.4 million people travelled by subway.

"By the end of October, we had carried more than 83.5 million passengers, the number we had expected for the whole year," Wang said.

Survey

A survey shows that more than 60 percent of passengers are from outside Beijing, usually loaded with luggage and packages. For that reason, most delays occur on trains heading for the railway station.

To ease the situation, the company has assigned more of its staff to platform duty, put more on alert to meet emergencies, and controls crowds by timing ticket sales. "This has been far from enough," Wang said.

The company hopes the planned new spur line connecting the busy Sidan shopping centre with Fuxingmen Station will help. This will enable the new outer loop route to be completed along its city centre section. The outer loop, which opened partly on October 1, has been averaging only 14,000 passengers a day.

Construction of the Xidan spur is expected to begin next year, according to Wu Xuyu, spokesman for the city's Capital Construction Commission. The City Construction Company has been put in charge.

One way to improve the situation, Wang said, was to have the trains pull their full capacity of six cars, instead of the present four or five. However, that cannot be done for a while because the subway's parking area is designed to handle no more than five-car trains. It is to be enlarged, but can't be completed for more than a year.

At the same time, there is a shortage of cars. It is difficult to get replacements even for the 100 cars that need overhauling.

Wang hopes that Beijing's efforts to solve its traffic problems above ground will ease the subway load. The government is restricting daylight lorry traffic, limiting parking and banning some left turns, as well as trying to shift people to jobs closer to their homes.

CSO: 4020/35

RAIL JUNCTION IMPROVEMENTS MAY HELP FLOW OF COAL

HK140439 Beijing CHINA DAILY in English 14 Nov 84 p 1

[By staff reporter Xu Yuanchao]

[Text] Fifteen congested railway junctions are to be updated in an attempt to ease the flow of cargo, according to the Ministry of Railways.

In the first nine months of the year, 907 million tons of freight were carried by rail, accounting for 78 per cent of the year's target and about 5 per cent more than the same period last year, said Shi Xiyu, chief dispatcher of the Railways Ministry.

Forty per cent of the freight was coal, 2.2 million tons of which were unable to move because of the jammed freight traffic.

Some rail sections and junctions have reached the saturation point. Dezhou, a junction station in Shandong Province was an example, said Shi. In the first eight months, about 10.2 million tons of coal were shipped through the junction to east China, a 5 per cent increase over the same period last year. About 800,000 tons of coal had yet to be carried according to the target set in the state plan, he said.

Transport and energy production are regarded as serious impediments to the country's economic growth. This has a direct influence on the output of some coal mines in China.

Shi quoted Vice-Premier Li Peng as saying that production quotas for coal mines should be set according to transport capacity. This policy is particularly adhered to in Shanxi, Shaanxi, Ningxia and Heilongjiang provinces, as well as in Inner Mongolia.

Profits

Coal stacked too high on coalfields would begin to burn from inside if it could not be moved out, a ministry official said. The policy of restraining production was to avoid coal mine losses.

Yet in east and south China, some enterprises, including power plants, are not working at full capacity because of coal shortages.

Shi said: "We made no profits because the coal carried by train was at a highly subsidized price." The price was recently raised to 0.0175 yuan per ton/kilometre from 0.014.

To double the freight annual capacity to 2.5 billion tons by 1990, more railways will be built and more locomotives manufactured.

In the first eight months of the year, China invested 3.5 billion yuan in capital construction of its railways. The country has built 142 kilometres of new lines and 209.5 kilometres of double tracks.

A 683-kilometre section of the Qinghai-Tibet line and a 477-kilometre railway linking the north and south of the Xinjiang Uygur Autonomous Region have gone into operation.

CSO: 4020/35

BRIEFS

SHANGHAI-NINGBO AIR SERVICE--Shanghai, 16 Nov (XINHUA)--Direct air service between Shanghai and Ningbo, a coastal city in northeast Zhejiang Province, was opened today by China's national airline, CAAC. Ningbo is one of the 14 coastal cities designated by the state to open wider to the outside world earlier this year. There will be three return flights between the two east China cities a week, taking about 25 minutes over the 160-kilometer route. At present, the aircraft uses Zhuangqiao airport, six kilometers from the center of Ningbo City, which is a military as well as civilian landing strip, but, according to the municipal authorities, a new airport will be built in the south section of Ningbo, able to accommodate large civilian airplanes. The new service brings the number of domestic air routes operated by CAAC to 176. [Text] [Beijing XINHUA in English 0937 GMT 16 Nov 84 OW]

SHANXI RAILWAY ELECTRIFICATION--The 110-kilovolt power supply line for the electrification of the Beijing-Baotou Railway (the Shanxi Provincial section) was completed and put into operation in late September. Power transmission has been successfully tested. This project was undertaken by the Yantong Power Industrial Company. [Text] [Taiyuan SHANXI RIBAO in Chinese 24 Oct 84 p 1 SK]

CSO: 4006/88

AUTHOR : Chen Ronghuai [7115 2837 2849]

ORG : Communications Dispatch Section, Huadong Telecommunications Bureau

TITLE : "Investigation and Improvement of Stability of Shanghai-Nanjing Microwave Communications Line"

SOURCE : Nanjing DIANLI XITONG ZIDONGHUA [AUTOMATION OF ELECTRIC POWER SYSTEMS] in Chinese Vol 7, No 6, Nov 83, pp 52-55, 51

ABSTRACT : The Shanghai-Nanjing microwave communications line began to operate in Jun 80. The circuits suffered from unstable transmission and loud noise. The causes of transmission attenuation were attributed to the passive relay between Shanghai and Qingpu, multipath reflection interference at Wangting, attenuation between stations separated by wide water bodies, undesirable high frequency coaxial cable, poor parabolic transmitting antennas and equipment problems. The suggested improvements included eliminating the passive relay between Shanghai and Qingpu, changing the polarization between Wangting and Suzhou, eliminating the Taixing station, replacing high frequency coaxial cables and transmitting antennas, installing new equipment and using dc current supply. These measures were taken this year and the quality of telephone service was significantly upgraded.

12553
CSO: 4009/22

AUTHOR : Bu Fanqiang [0592 0416 1730]

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TITLE : "Impulse Load Forecast Control System in the Sichuan Dukou Grid"

SOURCE : Nanjing DIANLI XITONG ZIDONGHUA [AUTOMATION OF ELECTRIC POWER SYSTEMS] in Chinese Vol 7, No 6, Nov 83, pp 56-59

ABSTRACT : The Sichuan Dukou grid is an independent 280MW system. The major load is the Panzhihua Steel Mill. The random impulse load of steel rolling caused a frequency fluctuation of 0.6Hz (49.7-50.3Hz), greatly affecting the safety and operating quality of the power plant. A closed-loop automatic regulation system, based on the SZY-30 telemechanical system and SD-176 computer, was developed to monitor and control the problem. The structure and working principle of the system were described. Two models were investigated in order to simulate the operation of the system. Finally, the system was first placed on line in Sept. 82. After modification, the second online test was conducted in Jan 83 with good results. The frequency fluctuation was reduced to 0.30Hz (49.86-50.16Hz). The feasibility of this closed-loop computer regulation system for power grids was fully demonstrated.

12553
CSO: 4009/22

AUTHORS : Wang Dianli [3769 0368 4409] and Huang Jianjun [7806 1696 6511]

ORG : Both of Dukou Electric Power Bureau

TITLE : "Software for the Impulse Load Forecast System in the Sichuan Dukou Grid"

SOURCE : Nanjing DIANLI XITONG ZIDONGHUA [AUTOMATION OF ELECTRIC POWER SYSTEMS] in Chinese Vol 7, No 6, Nov 83, pp 60-63

ABSTRACT : The frequency of an electric grid will drop and the system will oscillate under a great impulse load. The Dukou electric grid is a regional network primarily serving the Panzhihua steel mill. Currently, the maximum ΔP is 40MW and the largest frequency drop is -0.7Hz upon a random impulse load. The plant is expanding and the steel rolling impulse load is expected to reach 70-100MW. A computer forecast control system was developed and put in operation since 1983. In this paper the software of this automatic computer control system was introduced. The model adopted and the flow charts of various control programs were described. The system was found to be highly reliable. It regulated the power grid well. The quality of electric power supplied was improved. The frequency was controlled at 50°0.2Hz. This feedforward - feedback control system apparently worked effectively.

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CSO: 4009/22

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